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### How to Expel Rats.

The last number of the *Farm Journal* (Phila.) gives a scientific recipe for clearing a house of rats. The plan is a chemical one, and the editor describes it as having been put in force by a chemical friend of his in Boston, to expel an army of rats, after all other means had failed. The following is the *Farm Journal's* account of the affair :—

"Raising a small board in the garret floor, our friend opened a communication between the floor and ceiling beneath, which interior communicated with the spaces between the side walls and the laths and plaster over the whole house. Into this opening he placed a dish containing finely pulverized black oxyd of manganese, and poured over it a suitable quantity of strong hydrochloric (muriatic) acid. The floor board was then replaced. The effect of the chemical mixture of black oxyd of manganese and hydrochloric acid is to disengage in the cold that most powerful, deodorizing, fumigating gas, chlorine. In common with all gases, it gradually diffuses itself through the air, but having a greater weight than atmospheric air, it accumulates at the lowest levels. The tendency of the gas liberated, therefore, was to penetrate every vacant space between the walls and ceiling, and at last found exit in the cellar.

It may be here stated that the quantity of gas so liberated can exert no injurious effect upon the house or its inmates; indeed the result is rather beneficial than otherwise upon the general health.

The chemical arrangement described had not been long in operation when it became evident that something unusual was occurring in ratdom. 'All night long, it would seem,' says the narrator, 'as if Bedlam had broken loose between the partitions of my house.' Towards morning all had became quiet—the rats had vamosed, big and little, and for a period of nearly three months not one was heard or seen on the premises."

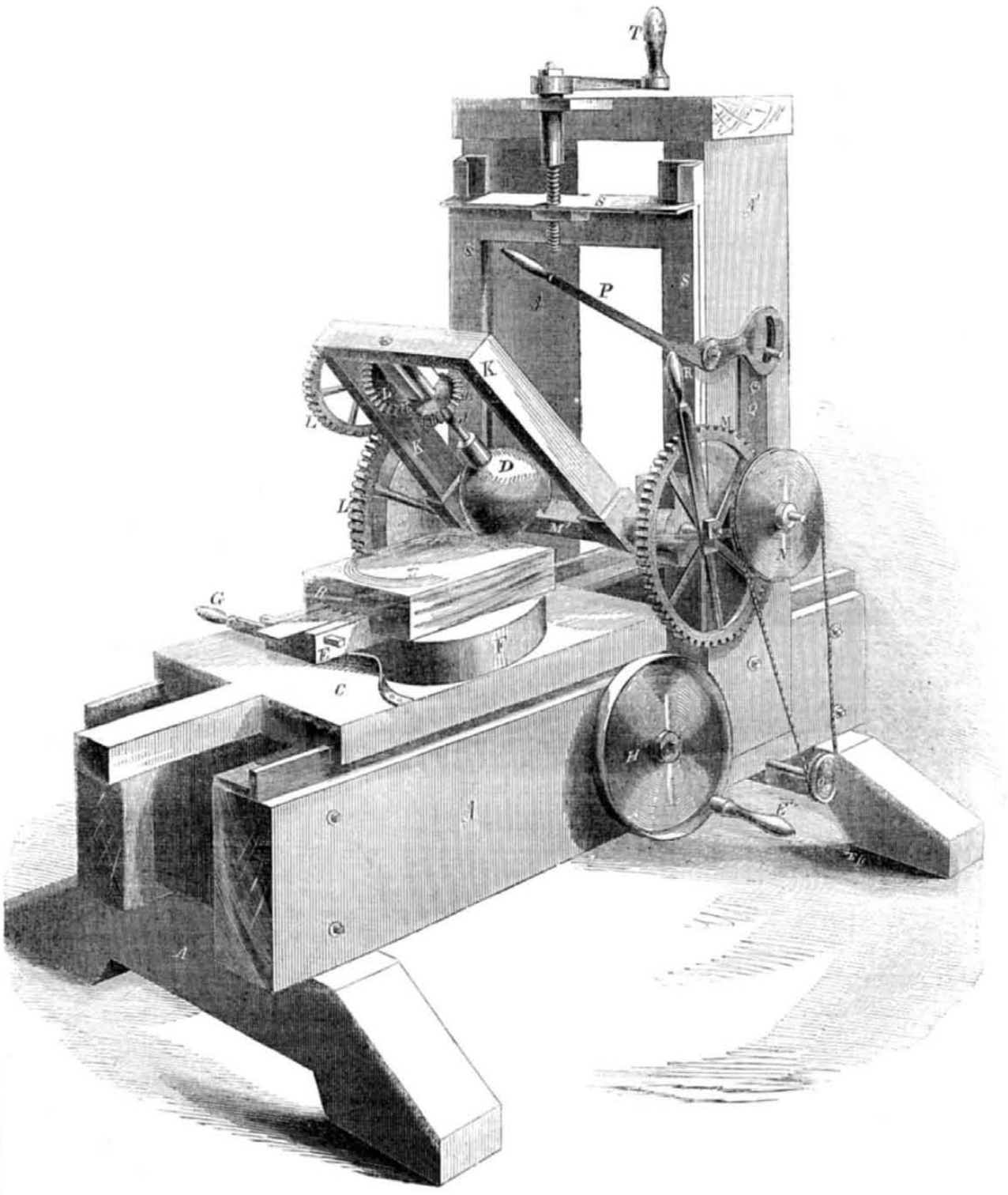
### Wooden Ware Machine.

Our engraving illustrates an ingenious machine for the rapid production of wooden trays, bowls, and articles of various kinds, the same being turned out of solid blocks of wood, in nests one inside of the other. It is the invention of Mr. Isaac B. Hartwell, of Woodstock, Vt., and was patented July 3, 1855.

The machine bears some resemblance, externally, to a planing machine. Its frame is indicated by A A'. The block to be turned, B, is mounted upon a sliding carriage, C, and shoved in under the spherical shell cutter, D. The cutter begins its operations at the outer end of the block, at the point indicated by the black curves; if the block were therefore shown in the act of being cut, it would be shoved further in than now seen. The block rests upon dogs, E, which prevent it from moving out of place; these are attached to a turn table, F, which permits the quick shifting of the block, end for end. G is a spring latch for holding the table, dogs, and block in a given position.

The carriage, C, is moved in and out by means of shaft, H, and handle, E.

## MACHINE FOR TURNING WOODEN WARE.




Only one cutter, D, is shown in fig. 1, but there are, in reality, several. They are of spherical shell-shape, placed one within the other, but all attached to the shaft, J.

The cutters merely serve to cut circular grooves in each end of the block, corresponding to the rounded ends of the tray. The straight sides of the tray are cut by means of circular saws placed at an angle, at the rear of the machine, but not shown. The trays are then split apart.

This method of producing trays renders them thin at the top and thick at the bottom, which is the proper form; it also permits portions of all the shells to be cut at once, and prevents any of them from springing out of place to cause trouble, as in other machines. The shape of the ware produced will correspond with the form of the cutters.

The shaft, J, is hung, in an oscillating frame, K, which bends forward, in the manner shown, when the cutters are to be brought into operation. The cutter shaft is put in motion by means of the several gear wheels, L. The oscillation of the frame, K, is accomplished by means of the wheel, M, which is attached to the bottom cross shaft, M', of frame, K. The wheel, M, receives a slow motion from pulley shaft, N, with which it gears by means of a pinion behind the pulley. O is the pulley that gives motion to N.

When the wheel, M, is put in motion it brings the frame, K, and the cutters down, from a vertical to a horizontal position, and the circular grooves are cut in one end of the block, as shown by the black curved lines. It is now necessary to lift the cutters, and shift the block, in order that the grooves may be cut in the other end. To do this the attendant pushes up the lever, P, which operates the rod Q, and throws the spur wheel that meshes with M out of gear. The frame, K, is then lifted up by means of the lever, R, which is attached to wheel M.

S is a sliding frame, to which the cutter frame, K, and appurtenances are attached. The hight of the cutter frame may therefore be regulated to suit the thickness of the block of wood by merely turning the screw crank, T.

To cut bowls a series of spherical cutters of a different shape are placed on shaft, J, and the grooves first cut in one end of the block, then in the other end, the same as described in the operation of making trays.

The inventors inform us that this machine is the most rapid in its operations of any known to them for doing the same sort of work. It will cut a nest of six bowls, the largest 18 inches in diameter, in five minutes. The ends of the trays being of the same shape and cut in the same manner, would only require the same time. The trays can be beautifully finished off in the machine in two minutes time each.

A perfect machine costs, in its construction, $200; is simple, easily managed, uses but little power, and operates with facility on any kind of wood suitable for use, such as hard and soft maple, birch, poplar, &c. This invention, it strikes us, must prove profitable wherever it is introduced. For further information address N. Woodbury & Co., Woodstock, Vermont.

Baldwin & Co., of Philadelphia, have built a splendid new locomotive for a railroad in Mexico. The cylinders are covered with German silver, and so are the boiler domes. Its mountings are very rich.

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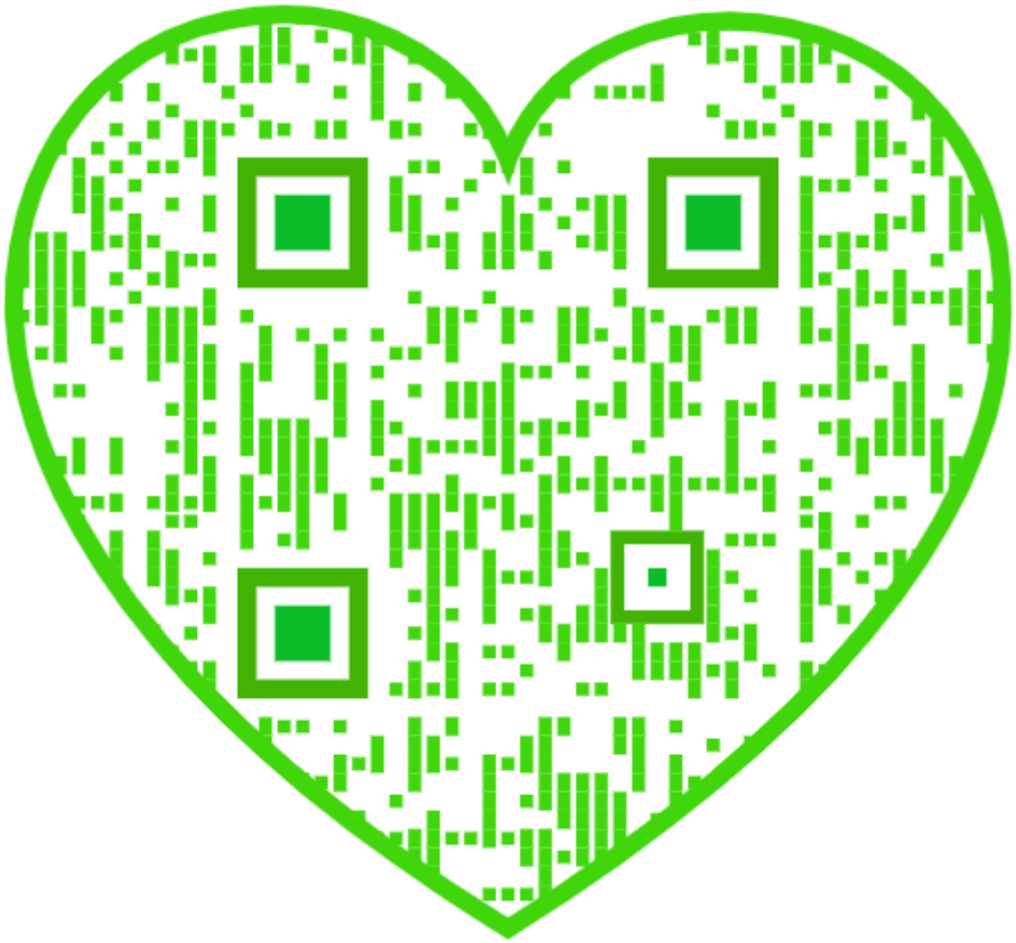

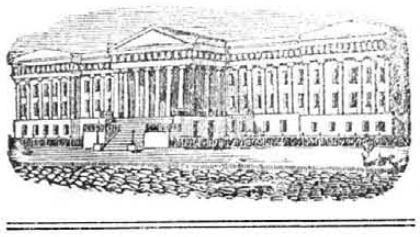

[Reported Officially for the Scientific American.]

## LIST OF PATENT CLAIMS

### Issued from the United States Patent Office

FOR THE WEEK ENDING FEB. 19, 1856.

SOWING SEED BROAD-CAST—Edward H. Berry, of Hudson, N. H.: I claim the perforated sowing cylinder, C, and the secondary internal perforated distributing cylinder, I2, connected with the hopper at its center by the tubes, I I, with its central portion or tube enlarged so as to distribute the seed evenly to the whole length of the lower portion of the sowing cylinder, in order that the seed may be cast or sown evenly broad-cast over the soil, essentially in the manner and for the purpose set forth.

FORKS—Sherburne C. Blodgett, of Philadelphia, Pa.; I claim the construction of forks with a metal web or sheets between a part of the prongs, as described.

FOUNTAIN PEN—Henry A. Brown and James Wiley, of Brooklyn, N. Y.: We claim the making of the pen, A, with a solid half circular head, B, and arranging it to slide into the pen holder, (having a face plate, E and e2, as set forth) so as to operate as a slide valve or cut-off to the flow of ink, when operated substantially as set forth and in form and manner, and for the purposes described.

SAWING MARBLE—Wallis Bull and George Bull, of Towanda, Pa.: We claim securing the saws, H H, in the frame, D, by means of the boxes, E, provided with rollers, j, and rods, G, having on the inner ends swivel boxes, I, to which the ends of the saws are attached, whereby the saws may be properly strained in the saw frame, and at the same time allowed to move laterally therein.

COOKING STOVES—Abner Burnham, of Albany, N. Y.: I do not claim the placing of an air chamber or air flues, around the fire chamber nor over the upper fire flues of stoves, nor the carrying of an air passage or radiator through the smoke pipe or chimney as separate and distinct parts of the apparatus, as each of them may be found in some existing stoves.

But I claim the combination of an air chamber surrounding the fire chamber, having inlets for the admission of air from without, with an air flue lying between the top of the fire chamber with its flue and the top plate of the stove, together with an outlet from the same by a pipe or radiator placed within the smoke pipe or flues, substantially as set forth.

ROLLING METAL—G. H. Corliss and E. Harris, of Providence, R. I.: First, we claim the combination of the reciprocating roller carriage, F, with the guides, D D, and a table, E, substantially as described.

Second, we claim raising the roller, G, for the purpose of placing the work between it and the table, C, by fitting the roller carriage, F, to the oblique slots, e e, in the sliding boxes, E E, and providing latches, L L, operating as described to secure the carriage in the sliding boxes during the rolling operation, but to loosen them and allow them to run up the slots, as set forth, at the termination of the return movement of the roller.

Third, we claim the arrangement of the crank shafts, J, relatively to the rolling table, C, and roller carriage, F, substantially as described for the purpose set forth.

FORGING THIMBLES—G. H. Corliss and E. Harris, of Providence, R. I.: We claim, first, the employment of forging thimbles of an anvil, O, and hammers, a a, operating substantially as set forth.

Second, in combination with the arrangement of the shafts of the eccentrics out of the stocks, F F, which carry the hammers or squeezers, we claim the inclined guides, h h, to receive the said stocks after the withdrawal of the eccentrics, and the levers, b b' b b' and k, for the movement of the stocks up the said guides to withdraw the hammers or squeezers from the interior of the thimble to admit of its removal from the machine, all arranged, operating substantially as set forth.

VAULT COVERS—John B. Cornell, of New York City; I claim the flat faced panes of glass secured in positions that bring their exposed surfaces (or a little above) the upper faces of the bars of the metallic frame, when said bars have grooves between their said upper faces which form gutters around the panes of glass, for the purposes set forth.

GRAPPLE FOR RAISING STONE—Marcus M. Cass and L. R. Bigelow, of Watkins, N. Y.: We claim the combination of the levers, braces, and wedge, substantially as described, for the purpose of making a grapple for raising stone or other heavy bodies, when the power to raise such body is applied to the wedge, and through it to the levers to cause their jaws to tightly grasp and hold the body to be raised, as set forth.

SEWING GUIDES—Seth P. Chapin, of New York, N. Y.: I do not claim a device invented by S. C. Blodgett for cording umbrella covers, in use of which the edge of the cloth in a partially turned state is guided in a slot and a turn over the cord completed by passing under the presser, the parts forming the sides of the slot being neither curved nor crossing, and the one conveying the cord terminating at some distance from the presser.

But I claim the method of forming hems on the edge of flexible materials by means of folding guides made to turn the edge 180° or more, substantially as described.

And in combination with guides substantially as described, I also claim the employment of a spring, F, or analogous device, 1st, to hold and guide a piece of cloth by an edge or plait. 2d, to cause the cloth to follow the guides placed between it and the needle with certainty. 3d to keep the cloth on a stretch while the stitch is being drawn.

SEEDING MACHINES—Stephen Gorsuch, of Altona, Pa.: I do not claim the distributing device, for the same plan is in common use.

But I claim placing the screws, I J, in the conveying tube or spout, G, the front and back sides of the tube or spout being open substantially as described for the purpose specified.

POWER LOOMS—John Johnson, of Troy, N. Y.: I do not claim a double shed.

But I claim inserting the wires at the same instant the shuttle is thrown, by which I save a pick by the employment thereof of a double shed, in the manner set forth.

I also claim the vibrating belt or its equivalent, to which the wires are connected, arranged, and combined, substantially as set forth.

FLEXIBLE PEN HOLDER—F. J. Klein, of New York City: I claim a pen holder, constructed in two distinct and separate pieces or sections, so that the lower section, b, shall be a lever having the metallic rivet, C, as a fulcrum.

I also claim the peculiar formation of the chamber in section, a. and of the arm of the lever, by means of which formation and adaptedness each to the other, the holder is rendered more symmetrical, compact, and a movement of the aforesaid levers permitted only in one direction, and for a limited distance, and a motion in any other direction is absolutely prevented.

MOLE OF DRAINING PLOWS—A. Marquiss, E. Marquiss, and C. Marquiss, of Monticello, Ill., and Charles Emerson, of Decatur, Ill.: We are aware that mole plows for forming subterranean drains have been used, therefore we do not claim the principle of forming underground drains by the use of such.

But we claim the peculiar shape of the mole, A, which enables its forward movement to form a subterranean perforation whose top and sides will be densely and smoothly compressed, and whose bottom will be left almost entirely uncompressed, substantially in the manner and for the purpose set forth.

We also claim the giving the tail, a, of the mole such a shape and position that it will serve to close up the slit cut by the mole shank, B, in forming a perforation, and also serve to lead the mole upwards to the surface of the ground as soon as the beam, E, is allowed to turn on its axis, substantially as set forth.

PLOWS—J. B. Mell, of Riceboro, Georgia: I claim the standard, A, with the braces, B, in combination with braces, L C, and beam, D, constructed in the manner and for the purpose set forth.

TENONING WINDOW BLINDS—J. H. Palmer, of Elmira, N. Y.: I do not claim the disks, J J, and carriage, M, in themselves considered, nor when operating conjointly, irrespective of the peculiar manner of operating the disks, as described.

I claim operating the disks, J J, to which the cutters, K, are attached by means of the cams, G G, arranged substantially as shown and for the purpose specified.

BILLIARD TABLE CUSHIONS—Michael Phelan, of New York City: I claim a billiard table cushion composed of a block of india rubber, C, a layer of cork, D, and strap of leather, E, arranged, combined, and applied, and operating substantially as and for the purpose set forth.

[Several engravings illustrative of the above excellent invention will be found in No. 15, of our present volume.]

APPLYING SHAFTS TO AXLES—Charles S. Pitman, of Swampscot, Mass.: I do not claim the mere use of rubber either to act as a spring, or to prevent wear and noise.

But I claim the manner in which I have applied such a shaft and axle, the same consisting in extending the india rubber bolt protector each way beyond the holding strap, in combination with extending it entirely around the bolt, as specified, whereby under any upward or downward movement of the shaft, not only the bolt but the connection fork will be protected from wear and liability to make a noise, while under the sudden starting or stopping of the draft animal connected to the shaft, and the strain on the bolt and fork will be eased by the spring or elasticity of the bolt protector.

TEMPLES FOR LOOMS—Rensselaer Reynolds, of Stockport. N. Y.: I claim the arrangement and gear, substantially as shown and described, of the shank, D, of the opening and closing jaw, with the stop or roller, B, in combination with the closing and receding spring, E, for the operation together, essentially as specified.

CONSTRUCTION OF PESSARIES—F. Roesler, of New York City; I claim an instrument composed of a ring, A, and two supporting pieces, B B, hinged thereto by springs top hinges, substantially as described, either with or without a front or back supporting piece, a.

And I also claim fitting the supporting pieces, A A, to their hinge with a pin and socket, G, or the equivalent thereof, as described, to allow of one or both of the supporting pieces being set obliquely to the ring or extended lengthwise.

HUBS FOR CARRIAGES—Joseph Smith, of Sunbury, Delaware Co., O.: I am aware that friction rollers have been used for relieving the friction on the hubs of vehicles, this I do not claim.

But I claim the combination with the axle of vehicles of a segmental box, c c, slotted cylinder, d, and friction rollers, r' r', all arranged and operated substantially as set forth.

PRINTING FROM ENGRAVED PLATES—J. F. Starrett, of New York City: I claim, first, one or more traveling platforms attached to revolving arms, and carrying engraved plates from inking to wiping, and then to printing apparatus in succession, or to any two such, such apparatus being so arranged that the last and first of the series are next in succession, and the arms revolve in the same direction continuously, substantially in the manner and for the purposes specified.

Second, I claim causing engraved plates which are carried around in the circumference of a circle to be submitted to a printing cylinder in a line parallel to its own axis, and not in radial lines of the circle in which the plates are carried, and then permitting them to pass in contact with said cylinder in lines perpendicular thereto, and not in the arc of a circle, substantially in the manner described,

Third, I claim imparting to a plate or plates thus handed, a zig-zag or devious progressive motion, while they are passing in contact with certain cloths or rollers, substantially in the manner and for the purposes specified.

Fourth, I claim the flexible connection between the plates or their beds, and the handing or carrying arms, as also grooved tracks, or their equivalents, acting upon beds so attached, and also these two in combination, substantially in the manner and for the purposes specified.

Fifth, I claim such flexible connection in combination with a stop whereby an engraved plate carried upon a revolving arm, is properly presented to the action of the impression cylinder, substantially as specified.

Sixth, I claim wet wiping an engraved plate by means of a traveling cloth acting in combination with a plate having a zig-zag progressive motion, substantially in the manner described.

Seventh, I claim an automatic oscillating receiving table in connection with a printing apparatus, wherein are printed in succession, sheets having different matter printed thereon, so that similar sheets may be laid in the same pile, substantially as specified.

Eighth, I claim vibrating chops or fingers in combination with the tapes for completing the delivery of a printed sheet, and depositing it upon a table, substantially as specified.

SAWING MARBLE IN OBELISK FORM—Philip Scrag and W. J Von Kammerhueber, of Washington City, D. C.: We do not limit ourselves to the material or form of the different parts of our machine, as long as the peculiar character of the said parts is retained, and we do also not limit ourselves to the material which shall be sawn by this machine.

We do not claim the use of pulleys, belts, or their equivalents and guides for the sole purpose of converting the direction of the motive power into the direction of the saws: nor do we claim the straining of saws by means of belts or chains, as these all have been done prior to our invention.

But we claim, first, the described use of belts, or their equivalents, adjustable in their length, substantially as described, in combination with the saw frames in which the saws are strained, independently of said belts, whose adjustability is solely for the purpose of permitting change in the distance, or in the angle of the saws.

Second, we claim the saw supporters adjustable both horizontally and vertically, substantially as described, whereby they are enabled, when cutting parallel or inclined grooves, to place the saws in the same plane, that they may commence and end their work simultaneously, and also when it is desired to cut cross-wise, or to a point, to place the saws in different planes, the one above the other.

Second, we claim the vertical adjustability of the roller, O3, upon the shaft, r', of the straining apparatus, which permits the retention of the belts in a horizontal plane, whether the saws and their frames are placed in the same or in different horizontal planes, as described.

PREPARING VEGETABLES FOR PRESERVATION—M. B. Southwick, of St. Hilaire, C. E. Patented in England, Sept. 15, 1853: I claim the improved mode described of separating the skins or peels of potatoes and other vegetables from the pulp, and skins together, against the denticulated or serrated edges of pieces of metal, or other material, whether such pieces be aquiline shapes or otherwise, provided the skins are caught by the teeth and are thereby separated and taken from the pulp, whether the teeth be shaped like saw teeth or otherwise, or whether the working table be of circular form and revolving, or be made of any other shape, and caused to vibrate and move from side to side, to produce the effect of the circular trough or table described.

FURNACES FOR HEATING SLUGS FOR HATTERS AND TAILORS—Russed Wildman, of Charlestown, Mass.: I claim the plate, k, in combination with the fire box, and lifting arrangement, substantially in the manner and for the purpose described.

STAVE MACHINE—G. W. Livermore, (assignor to Livermore Manufacturing Co.,) of Cambridgeport, Mass.: I claim the described machine for jointing, crozing and chamfering staves, consisting essentially of the clamp for holding the stave, the jointers, D, and the crozing chamfering cutters, combined and operating in the manner substantially as set forth.

PHOTOGRAPHIC PICTURES ON JAPANNED SURFACES.—H. L. Smith, of Gambier, O., (assignor to Wm. & Peter Neff, Jr., of Cincinnati, Ohio): I claim the obtaining of positive impressions upon a japanned surface previously prepared upon an iron or other metallic or mineral sheet or plate, by means of collodion, and a solution of a salt of silver, and a camera, substantially as described.

RE-ISSUES.

TICKET REGISTER FOR R. R. CARS—Wm. Aperly, of New York City. Patented originally May 1st, 1855: I claim providing a suitable box, A, for holding the tickets and employing and arranging a distributing lipped slide, c d, upon the bottom of said box, or underneath the tickets, in combination with the employment and arrangement on top of the tickets, of a spring or weighted follower, D, substantially as and for the purpose set forth.

I also claim providing the extension or small box, E, and inclined way, n, substantially as and for the purpose set forth.

[For engravings and explanations of this invention, see Vol. 10, SCI. AM., page 316.]

HARVESTING MACHINES—J. H. Manny, of Rockford, Ill. (assignor to P. H. Watson, of Washington, D. C.) Patented originally Oct. 17, 1854. Ante-dated June 15, 1854: In machines for reaping and mowing, where the joint by which the tongue or draft bar is connected to the platform, is situated at or near the front of the frame, I claim a draft bar or tongue constructed and extending backward over the main frame, and connecting it with a suitable device for supporting it at various hights, whereby the cutter can be conveniently adjusted to different hights by an attendant on the main frame, substantially as set forth.

ADDITIONAL IMPROVEMENT.

DAGUERREOTYPE CASES—J. F. Mascher, of Philadelphia, Pa.: Patented originally March 9, 1853: I claim the combination and arrangement of a series of leaves of any suitable material, containing photographic or other pictorial representations (interspersed or not with blank or printed leaves) with the supplementary lid or adjustable flap, containing a lens or lenses, as described, the same being united or bound together so as to form a book, as described.

DESIGN.

PARLOR STOVE.—Wm. T. Coggeshall, of Fall River, Mass.

NOTE—More than one-third of all the patents granted as above were obtained through the Scientific American Agency. Quite a number of highly important and valuable inventions are embraced among the number. The opening spring promises to be an unusually favorable season for inventors. Business of all kinds appears to be reviving; money is becoming more plenty; speculative investments are in demand; holders of patent rights will therefore enjoy better chances of realizing from their patents than ever before.

[For the Scientific American.]

### Pressure of the Wind.

On page 103, present Vol. SCIENTIFIC AMERICAN, in answer to your correspondent "M. P., of Md.," you say, "The data of Mr. Conger and ourselves respecting the amount of atmospheric pressure on a square foot, was obtained from tables of experiments, with apparatus measuring the wind's velocity."

As regards myself, you were not wholly correct. I have met with no table of experiments giving the pressure per square foot of the wind impinging on a surface. All that have come under my notice were obtained by causing the body to revolve against the air, which were, necessarily, attended with uncertainty.

The data were the immutable principles of nature which govern matter in motion, and the result was obtained by calculation based on them.

When matter is acted on by a force it will tend to move with a velocity, directly, as the intensity and duration of the action of the force, and inversely as the mass of matter acted on.

When a unit of matter is acted on by a unit of force during a unit of time, it will, if free to move, acquire a unit of velocity.

When moving matter has its motion arrested, it imparts a force to the obstacle arresting its motion, equal to the force that gave it motion.

The truth of these premises has been proven by observation of the heavenly bodies, demonstrated by investigation, and verified by experiments; and it flows immediately from them, and experiments have also verified the fact, that fluids, when impinging perpendicularly on a plane, impart a force as the mass impinging and the velocity with which they impinge. Hence, by putting $p$=the pressure, $v$=the velocity, $m$=the weight of fluid impinging per unit of time, and $g$=the velocity imparted to a unit of matter by a unit of force in a unit of time, we have $v=g \div mp$, from which, to determine the value of $p$, we obtain $p=v \div gm$.

By assuming the first and second as units of space and time, and a mass weighing one pound, and the action of gravity on it as the units of matter and force, the unit of velocity is found to be 32·1598 feet per second. And, as the number of cubic feet of fluid which impinge on a foot area per second, will equal the velocity, by putting $w$=the weight of a cubic foot of fluid, we have $m=wv$; and the pressure per square foot $=p=v \div gwv$, from which we obtain $p=w \div v^2$.

Atmospheric air weighing about ·07358 lbs. per cubic foot, when air is considered $w \div g=$ ·002288, which may be represented by $a$, when the expression takes the simple form $p=av^2$. That is, the square of the velocity of a current of air multiplied by ·002288, gives the constant pressure per square foot.

One mile per hour is 1·46666 feet per second; and one hundred miles per hour is 146·666 feet second. And by the rule $·002288 \times 146·666^2 = 49·2$ lbs. per square foot, pressure. At 30 miles per hour, equal to 44 feet per second, the pressure will amount to but 4·43 lbs. per square foot; whilst at 200 miles per hour it will be 196·6 lbs.

Cf course, no more than a close approximation to the truth is intended by the above, as the pressure will vary with circumstances—the form of the body, etc.—but the pressure will generally be greater than that indicated by the formula.

These calculations may be useful to persons attempting to make a flying machine, for it is demonstrable that no balloon can be constructed to carry an engine powerful enough to impel it, even at a moderate rate, through the air, and that no machine can be made to sustain itself in the air by mere sails or wings.

J. B. CONGER.

Jackson, Tenn., February 1856.

[The tables of experiments referred to by us, of which there are not a few, agree exactly with the calculations of Mr. Conger.

(For the Scientific American.)

### Stalk Cutters and Husk Splitters.

MESSRS. EDITORS—I noticed recently a communication signed "Farmer," and hailing from Chicago, Ill., the writer whereof offers to assure any man a fortune who will put in that market a cutting box, simple enough, as I understand him, to be easily understood and worked by common farm hands, and firm enough of con struction to cut corn stalks as an every-day business, and not get "out of kilter." If he will put his proposition in the shape of an offer to pay a definite and sufficient sum, either for a certain number of machines or for a territorial right to make and sell the same, said offer to be accompanied with proper vouchers that the "root of all evil" shall be forthcoming I will engage to furnish the machines or right, payment for either to be conditional on the satisfactory working of the cutter, to be tested by disinterested parties.

Another correspondent earlier in the season was calling from the South for a "Corn Husk Splitter," to prepare husks for mattrasses. If made sure of the pay and enough of it *to* pay, provided the machine works, I will furnish one that shall be simple, not liable to get out of repair, and not require beyond a *two-boy* power to prepare at least 500 lbs. of husks per day ready for use or for the market.

INNOMINATA.

Fairmount, Marion Co., Va., Jan. 30, 1856.

### Cowrie Gum.

MESSRS. EDITORS—I noticed an article in a recent number of the SCIENTIFIC AMERICAN, on "Cowdee Gum," which no doubt is the same as the article sold in this market as New Zealand gum copal in contradistinction to the African, and is sold in London under the name of "Cowrie Gum." It is found buried to the depth of some feet in the sand hills of Australia, where it has probably lain, the Lord only knows how long, like the Zanzibar copal, which is supposed to be the gum of a tree long since extinct, as no vestage of a tree now remains in the vicinity. In Australia it is supposed to have come from the Cowrie pine, hence its name. The whale ship *Robert Pulsford* brought a cargo of it into Lynn more than ten years ago, and cargoes of it have since been imported into Boston and Salem, and there is now over five hundred tuns in the two places for sale. I imported hundreds of tuns from England years ago, at a price which did not pay the expenses of transportation, &c., from Australia, when they could not give it away in England, and the consumption of it in this country was considerable before it was used in England. It was sold at one time as low as three or four cents per pound, and afterwards went up to 25 cts., and is now selling at 10 *a* 12 cts. in the rough state. M. F. F.

Boston, Feb., 1856.

### Growth of Western Towns.

Oshkosh is a city of about 5500 inhabitants, and is built upon the western shore of Lake Winnebago, below the junction or union of the Fox and Wolf rivers in Wisconsin, and has, in a few years, from a state of wilderness, become an active and flourishing city. Its prospects for agricultural and mechanical pursuits are very bright. though at present lumbering is its leading business. It is but little known. Its recent growth accounts for this. A. V. P.

A correspondent suggests that the brittle iron described on page 184, was never annealed and had been sent by mistake for malleable iron. We were assured that the case was not a singular one.

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## Report of the Commissioner of Patents for the Year 1855.

[Concluded from last week.]

U. S. PATENT OFFICE, Jan. 31, 1856.

INSECURITY OF PATENT PROPERTY.

The present insecurity of the property of inventors, even after patents are obtained, is a source of great discouragement and of peculiar hardship. A patent gives to the holder only a presumptive right of property. When it is infringed—no matter how wantonly—the trespasser is permitted to protect himself by proving, at the trial, that the invention was first made by some other person, and not by the plaintiff; though it may have been kept a profound secret, and would never have seen the light but for the subsequent invention of the patentee. Or he may defeat the action by showing that the same contrivance is described in some publication printed in any foreign language, and which publication was never seen or heard of in this country before the date of the trial, when this proof is made.

The liability to be set at defiance in this manner continues throughout the entire lifetime of the patent; and no matter how often the validity of the patent may be established in Court, it is equally liable to be called in question on any new trial. The disheartening and prostrating influence that this is calculated to exert upon those who devote their lives and energies to the improvement of all the arts of civilized life, and to making those discoveries which have given a character to the present age can readily be perceived without comment.

WHY PATENT PROPERTY SHOULD BE PROTECTED.

In the opinion of many, however, any remedy that can be contrived would be more to be feared than the evil which was sought to be remedied. But is there any good reason for such a conclusion? Why should the holder of a patent—which is presumptive evidence of title—be forever liable to have his rights called in question by every mere trespasser? Such a course is not permitted in relation to any other species of property. The wrong doer is not in other cases, permitted to protect himself by calling in question the title of him who has *prima facie* evidence of ownership. Why should he do so in relation to this species of property?

It is true, that if a patent should be granted for a machine already in common use, and which is, therefore, fully the property of the public, any person sued as an infringer should be permitted to protect himself by showing the facts of the case. But why should a person who has trespassed upon what he does not pretend to be public property be allowed to defend himself by showing the property to belong rightfully to some other individual?

The analogies of the law relating to tangible property leads to this same conclusion. If one person makes an enclosure upon the lands of another, his right of action against any trespasser is complete and unquestionable. But if he were to enclose a portion of the public highway no such action would be maintainable, for his enclosure is itself a nuisance which any one may disregard or remove.

Analogy also suggests another provision still more important and effectual. So great are the evils resulting from uncertainty of title to real estate that in most of our codes means are provided by which the presumptive owner may file a bill in equity and bring such uncertainty to an end. Is there anything in the species of property we are considering which renders a similar provision out of place or objectionable? If the holder of a patent were permitted—under proper regulations—to file a bill to quiet his title—either in one of the federal courts already organized or in a special tribunal created expressly for that purpose—would not the result prove as harmless and as beneficial as though the patent were for real estate? The patentee would then be enabled to feel that security which would give double value to his property, and would be free from that continued series of vexatious lawsuits which often render the most valuable inventions the sources of continual annoyance, if not of eventual pecuniary ruin to their authors.

PROPOSED REMEDY OF THE DIFFICULTY.

As a short and effectual remedy of all these difficulties, it is the opinion of some who have thought upon this subject that the whole system of granting patents ought at once to be abolished. But is it not one of the cardinal purposes in the establishment of all governments to protect the citizen in the undisturbed enjoyment of his property? This species of property is by the Constitution placed under the special guardianship of Congress, and it is difficult to perceive why it is not as much entitled to legislative favor and protection as any other property. If inventions are not to be made capable of being effectually appropriated, why should lands or any tangible article of personal property be so? And yet no one proposes to return to the savage state, so far as these kinds of property are concerned. To do so in regard to inventions would be a retrograde in civilization as well as a separation from the plainest principles of justice.

No title can be more unquestionable than that resulting from discovery, unless it be that which is derived from actual creation. The recognition of either, if not instinctive in the brute, is certainly found in the lowest and most uncultivated orders of human intelligence.

The bird seems to have a sense of property in its nest; the beast in its lair; the savage certainly in the cave he has discovered or the weapon he has made. Even the first occupant of a tract of land, which he has neither discovered nor created, has a title which, in the absence of a better, is protected by the governments of all civilized countries.

To none of these is the title of the inventor at all inferior. He has created or discovered all that he claims the right to possess. The property for which he asks protection might never have existed but for him who has created it out of nothing. At least, he has called it into active being, and made it the servant of mankind, subject to the limited right of ownership, which he claims for himself. And when it is remembered that it is chiefly through the exercise of this inventive faculty that civilized man has risen above the savage, or that even the savage is to be distinguished from the brute; that it is the inventor who has either directly or indirectly been, and still is, the great instrument of human progress; that his has been the wizard wand which has called forth from the latent powers of nature messengers and servants surpassing in fleetness, power, and mute obedience the fabulous genii of Eastern tale, which has seized and fixed as by enchantment the transient and varying lineament, or the flying sound, and transmitted them unchanged to the latest posterity; or that in humbler but perhaps equally useful endeavors he wears out his life in often unrequited efforts to benefit mankind, it must be a mistaken or perverted impulse which would grudge him that protection which is accorded to all others, or that would fail to encourage in all suitable ways efforts from which the world is now reaping such incalculable benefits.

The evil effects which would be the result of a departure from the rule of right in this case are easily perceivable. Were the law to afford no protection to the inventor, his only means of reaping any particular benefit from his invention would be by hiding it from the knowledge of the world, as in Turkey, the peasant secretes his wealth lest it should become the prey of that rapacity against which the laws afforded no sufficient protection.

But the knowledge that is thus hidden is often lost, and at all avents its utility is greatly lessened. The ancients were known to have been possessed of many valuable arts, which modern ingenuity has tried in vain to re-discover. They are, perhaps, lost to the world forever, which would not have the case had there been a judicious system of patent laws in existence.

Besides, in relation to many kinds of inventions secrecy cannot afford any protection. Many machines, utensils, and manufactures are useful to the inventor only as they are publicly sold and used, and cannot, therefore, be hidden rom the world. Without some other protection, that great moving power of human action—the stimulus of pecuniary gain—would never arouse to their full energies the efforts of human ingenuity.

The reason why hundreds of intellects in all parts of our country are strained to their utmost tension in the attempt to discover something that shall prove useful to mankind, is attributable to the fact that individual profit is inseparably blended with the general welfare. But who would cultivate a field if others were to have an equal right to reap the harvest? The acknowledgment and protection of private property are the parents of industry and effort as much in relation to inventions as to any other species of possession or estate.

DURATION OF PATENTS.

For reasons like these some have claimed that the property of the inventor in the creations of his own ingenuity should be perpetual; and the argument founded on natural justice is not without great weight. The main objection against it is drawn from expediency.

Original inventions are always imperfect, leaving much to be done by subsequent inventors. The patentee of each improvement upon any invention must obtain the license of previous inventors before he can avail himself of his own property. Were all these patents perpetual as well as those for improvements made upon improvements, and combination upon combination, we should in the course of time find ourselves surrounded by inextricable confusion. The inventor must, therefore, be satisfied with such a modification of his rights as is required by the public good. Whether the present limit be not too narrow is a matter worthy of consideration. It certainly is so if the whole period of its duration is to be consumed in contest after contest—all leading to no final result.

OFFICIAL FEES.

Some modifications of the present rates of official fees have been recommended in former reports. They still seem desirable; not so much for the purpose of increasing our revenues to any great extent as with a view to a more accurate adjustment of the amount of compensation to the labor and trouble occasioned by the respective cases.

In pursuance of the general idea of rendering the Patent Office merely a self-sustaining establishment, it seems desirable that every case should, as nearly as practicable, be taxed with the expenses it occasions, but no more. This rule might easily be much more strictly observed than it is at present.

FEES FROM FOREIGNERS SHOULD BE REDUCED.

The most signal departure from it is seen in the exorbitant fees demanded of foreign applicants. Where the citizen or immigrant alien pays a fee of thirty dollars, the subject of the Queen of Great Britain who resides at home is obliged to pay five hundred. And yet the application of the latter occasions no more trouble than that of the former.

The plausible reason for this difference is that our citizens are obliged to pay as great a fee on applying for a British patent as is required of the British subject at our Office. It should, however, be remembered that the British Government makes no discrimination in this respect between subjects and aliens—all are taxed at the same exorbitant rates.

THE BRITISH PATENT OFFICE.

The Patent Office in that country is made a source of revenue. The nett receipts into the Treasury from the Patent Fund, in 1854, were about $75,000, after having paid more than $300,000 in salaries and other expenditures. It will require little argument to prove that this is a course of policy which is not in any degree worthy of our imitation.

These inordinate rates of fees produce to a great extent, the same evils which would result from the entire abolition of all patent laws. Invention is thereby greatly checked, for why should any one exert himself to create what he cannot afford to secure? Many seek to protect their rights by secrecy. On both these accounts the world loses many of the advantages which under a better system it would secure forever.

Our law co-operates with that of Great Britain in producing this very result. The inventive genius of other nations, checked and disheartened at home, finds itself repulsed here also, and that faculty which was intended to promote the progress and happiness of the race of mankind, lies comparatively inert and useless throughout a large portion of our brethren of the human family.

OUR PATENT LAWS SHOULD BE OPEN TO THE WORLD.

If all patents were to be regarded as gratuities to the patentees, there would be some reason in the rule that the subjects of other governments should be treated as those governments treat our own citizens in this respect. But patents for inventions are no more to be so considered than patents for lands. In either case the government receives a full consideration for what it grants. The inventor reveals his secret—secures a sole property in the invention for fourteen years, and surrenders it to the public afterwards—paying all the time the expenses occasioned by the transaction of the necessary business. Can any one doubt that this is a transaction advantageous to the public? If it be so, need we ask of what nation the other contracting party is a citizen. It is not usual for our countrymen to be thus fastidious when they are making profitable contracts. Our government grants patents for its lands without asking such questions. Our citizens ransack the world for customers who will offer them bargains of that description.

Or if a patent granted to an alien were in any way antagonistic to the legitimate interests of the home inventor, there would be some reason for discouraging foreign applications by high rates of fees. But such is not the case unless we are prepared to advocate the smothering of a valuable truth discovered in another country, for the doubtful possibility of the same discovery being made afterwards by one of our own fellow citizens.

Every real invention is a point gained, not by the country where the invention is made, but by the world to whom it is revealed. It is one more step in advance made by our common humanity, in the progress of that developement to which it is ultimately to attain.—It matters little by whom these inventions are first given to the world. The learning, the science, the arts of Europe are as much ours as though they had originated in America.—They advance us in the scale of existence in the same manner as though they were indigenous here, and as well might we refuse to improve our agriculture by the importation of better varieties of grains or plants or animals, as to shut out, or discourage those improvements in the arts and sciences which are first discovered in a foreign country. This is a Chinese policy, unworthy the intelligence and civilization of our age and country. A feeling of national prejudice, or a disposition to encourage the immigration of foreign inventors, may urge a continuance of the discrimination in favor of the home applicant for a patent; but that philanthropy which embraces within its scope all the children of our common parent, and that enlightened self-interest which rejects not a reciprocity of benefits by which the general welfare of all is manifestly promoted alike, forbid a continuance of this illiberal regulation.

Fully confident that the interests of the country, and the usefulness of this Office, would be alike promoted by the course herein recommended, the candid consideration of Congress is again invited to this subject, and some reasons are given in support of the proposed change, additional to those presented in the two last reports of this Office.

All which are respectfully submitted.

CHARLES MASON,
Commissioner of Patents.

To Hon. N. P. Banks, Speaker of the House of Representatives.

## Fire Proof Floors.

Alluding to this subject, and the views presented in the SCIENTIFIC AMERICAN of the 9th inst., Mr. E. Conklin, of Cincinnati, suggests the kyanizing of all timber to be used for buildings, so as to render them more fire proof. He believes that the extra cost of preparing building timber, joists, plank, boards, &c., by kyanizing them, would soon be saved, in decreased expenses for insurance. The suggestion is a good one. A good fire proofing solution for timber is, equal parts of alum and sulphate of copper dissolved in water, at the rate of 2 lbs. of these substances to the 40 cubic feet of water.

Mr. L. V. Bievie, of Akron, Ohio, states, that the best way to prepare fire proof floors is to cover the plank floor with "Blake's fire-proof paint." "It makes," he says, "a beautiful floor, becomes as hard as marble, and is both fire and water proof."

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# New Inventions.

### Rifles.—Their Construction for Active Use.

The following is selected from one of our foreign exchanges, and is part of a letter from a soldier in the Crimea, who seemingly has a good knowledge of mechanics. Our armorers may gain some valuable hints from his remarks :—

"It may be as well to echo 'the voices from the ranks' respecting the new Enfield rifle. As it is admitted to be *nearly* a perfect weapon, there is no season why the very few defects alleged to be in it should not be pointed out. In the first place, the men—and not only the men, but intelligent armorer-sergeants—say, that the new way of securing the barrel to the stock is not as good as the old way We have adopted the French plan of metal bands round the barrel and stock, instead of the old English fashion of passing bolts through the wood and through eyes projecting into the stock from the barrel. The armorers say that the wood expands, and prevents the removal of the barrel in wet weather—that the iron in summer is too loose, and in winter is too tight The men say the same. In the next place, they object to the ramrod, notwithstanding the recent improvement introduced into it by making the upper part below the ramming end of a greater diameter, so as to project beyond the rest of the ramrod into the fluting, because the ramrod is still subject to stick from the swelling of the wood, whereas it came out easily from the old metal sheath as long as it was kept clean. Thirdly, there is an objection on the part of men to the new plan, copied from the French (and Russians) of fixing the bayonet by a movable ring, instead of retaining the spring of the Minie rifle. It is true that the spring sometimes broke or became weak, but there is an advantage to be derived from its retention, it is this :—Every officer of experience knows the excessive thirst produced by the saltpeter and sulphur of the gunpowder getting into the mouth each time a man bites the cartridge. In hot weather this thirst is nearly insupportable, and interferes with the steadiness of the men in firing. But the action of biting off the cartridge end not only causes at all times a little 'loosening' of the ranks, but strains the teeth and hurts the gums after some sixty or seventy pulls at tough paper. Necessity obliges the regimental surgeon to refuse all recruits who have not good front teeth, though they may be otherwise quite serviceable. Would it not be a boon to the service if this thirst and fatigue were prevented, and the necessity for biting the cartridge obviated, provided that no change were produced in the drill, and no inconvenience created by the alteration? It certainly does strike one that the answer ought to be in the affirmative. Well, Surgeon Tweeddale devised a very simple remedy. The end of the bayonet spring of the Minie is flattened out so as to afford space for the pressure of the thumb in forcing it back. Dr. Tweeddale had a slit filed down in this portion of the spring, so as nearly to divide it vertically. By pressing the waste end of the cartridge against this slit with the thumb, and jerking gently the left hand, in which it is held, the paper is at once cut or torn off, and the cartridge is ready for use. The hands are still in the proper position; there is no violent alteration of drill, and the change can be made without a farthing's expense by the regimental armorers."

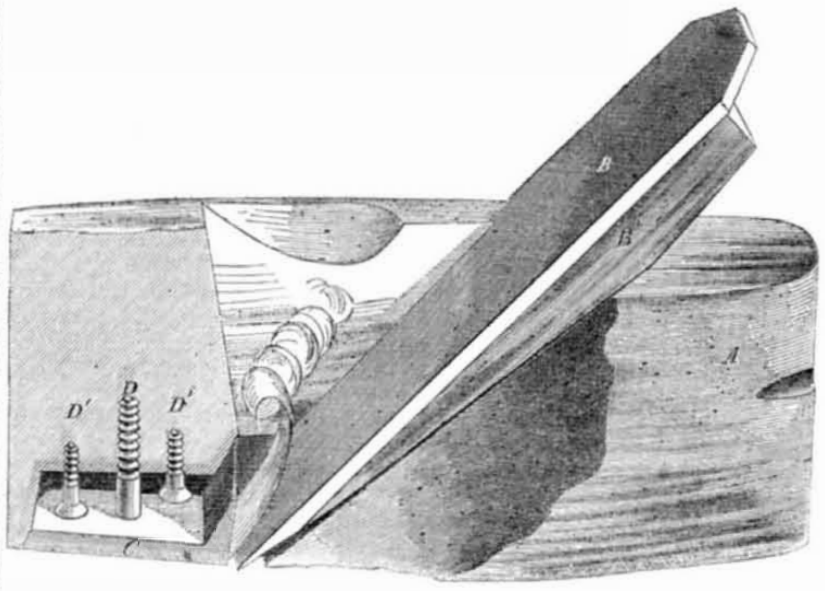
### The Persia.

This splendid British steamer started from New York on her return voyage to Liverpool, on the 20th Feb. She burns 108 tuns of coal per diem, at which rate her consumption for a fourteen-day voyage would be 1512 tuns. We suppose she carries, for safety, fuel enough for 18 1-2 days, or 2000 tuns. Her registered capacity is 3,600 tuns, but she carries over 5000 tuns. The cabins of the *Persia* are not so richly finished as many of the American steamers.

### The Locomotive.

Elihu Burritt, the learned blacksmith, says : "I love to see one of these creatures, with sinews of brass and muscles of iron, strut forth from his smoky stable, and, saluting the long train of cars with a dozen sonorous puffs from his iron nostrils, fall back gently into his harness. There he stands, champing and foaming upon the iron track, his great heart a furnace of glowing coals, his lymphatic blood is boiling in his veins, the strength of a thousand horses is nerving his sinews—he pants to be gone. He could 'snake' St. Peter's across the desert of Sahara if he could be fairly hitched to it; but there is a little, sober-eyed tobacco-chewing man in the saddle, who holds him in with one finger, and can take away his breath in a moment should he grow restive or vicious. I am always deeply interested in this man, for, begrimed as he may be with coal, diluted in oil and steam, I regard him as the genius of the whole machinery, as the physical mind of that huge steam horse."

## IMPROVED WOOD PLANE.




### Patent Finishing Plane.

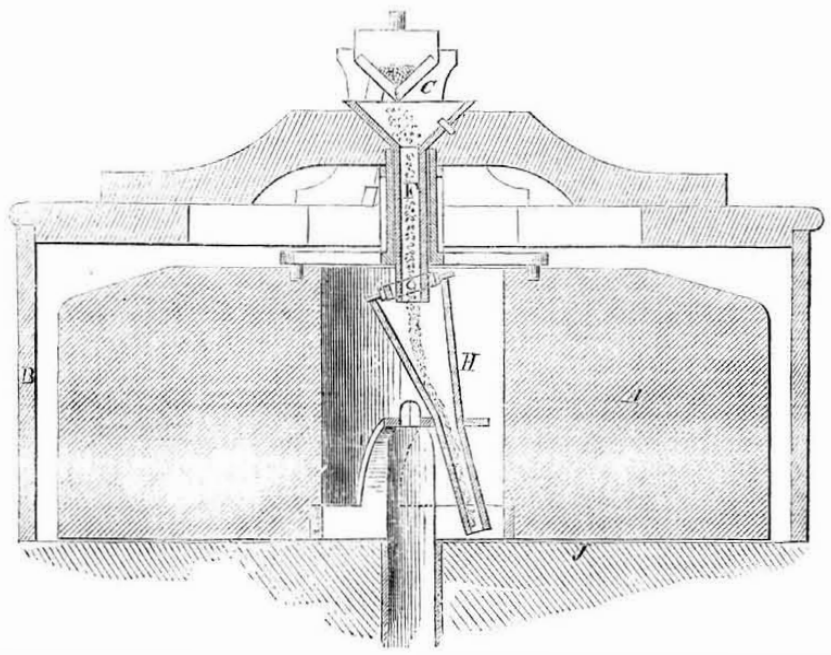
This invention is intended for use where it it is desired to impart a very fine, smooth, and glossy surface to the wood; but it is applicable, with advantage, to all kind of carpenter's planes. The novelty consists in placing the cutting chisel, or bit, in front of the wedge, instead of behind, as in common planes; also in applying a metallic mouth piece to the face of the plane, in front of the chisel, which mouth piece serves as the rest for the chisel, and confines the throat of the plane.

In our engraving, A is the plane, one portion of which is broken away in order to show the arrangement of the parts. B is the bit or chisel, B′ wedge, C mouth piece, D D′ screws for adjusting and securing the mouth piece to the face of plane.

The mouth piece, C, is so arranged as to leave a slight opening between it and the bit, B, and through this aperture the shavings rise, as shown. But the mouth piece is so close to the edge of the bit, as to prevent the plane from ripping or splintering the wood in the least degree. Indeed, we have seen the implement applied to the planing of wood against the grain, and transversely to the grain, leaving the wood perfectly smooth. So perfect is the operation of this instrument that it may be applied to the planing of veneers—with entire success—a thing which cannot safely be done by the common plane. The peculiar arrangement of the mouth piece, bit, and wedge, affords a complete and firm bearing for the bit throughout its whole length, and dispenses, under all circumstances, with the use of a cap or double bit.

This is a very simple and effective improvement, destined, we have no doubt, to find its way into every carpenter's shop in the land.—No tool chest is complete without it. The inventor is Mr. Wm. C. Hopper, of Pennsylvania, and his patent bears date Jan. 16, 1855. Mr. Joseph Ludwig, the agent, No. 31 Pine st., room No. 10, New York, will furnish any further information.

## IMPROVEMENT IN GRAIN MILLS.




### New Method of Feeding Grain.

The common method of feeding mill stones consists in simply dropping the grain through the eye of the upper or running stone, and allowing it to fall of its own gravity upon the lower stone. Thence it finds its way in between the two stones and is ground. This plan is objectionable owing to the fact that the grain is likely to fall against the sides of the eye of the upper stone, and in consequence of the centrifugal force of the stone, to remain here, accumulate, and at last clog up the aperture. This is more particularly the case when the grain is a little damp.

The object of the present improvement is to avoid the difficulty named. This is done by conveying the grain down to the lower or stationary stone by means of tubes which pass through the eye of the upper stone.

Referring to the engraving, A is the upper or rotating mill stone, and J the lower or stationary stone. C is a hopper, from whence the grain drops down through the stationary tube, F, into the tube H, and thence on to the lowe stone. All contact of the grain with the eye of the upper stone is thus avoided. The tube, H, revolves with a wabbling motion, being connected at its upper end with tube F, by a universal joint, and its lower end passing, through a strap connected with the bail, I, of the upper stone. The lower end of tube H is thus caused to sweep around in a regular circle, and deposits the grain evenly upon the lower stone.

Small burr stones, with increased number of revolutions, are gradually taking the place of the large and slower moving stones. But one of the objections heretofore attendant upon the use of small stones, is the adherence of the grain to the upper stone, by reason of the centrifugal force. The apparatus we have described works with the same effectiveness, whether the speed be slow or fast. Indeed, it will feed the grain with regularity under all circumstances, and is particularly useful where the motion is irregular, in consequence of the presence of ice upon the water wheel, &c.

The above appears to be an excellent improvement. It will commend itself, by its simplicity and utility, to the attention of millers, and no doubt find a very extensive adoption. It can be applied, for a trifling sum, to the mills in common use. It is the invention of Messrs. M. & C. Painter, of Owing's Mills, Md., who will be happy to give any further information desired. Application has been made for a patent.

### Launch of the Steam Frigate Niagara.

At 11 A. M., on Saturday last (the 23rd,) as promptly as the signal gun sounded, the appointed hour, this noble vessel commenced moving on her ways, and like a mountain rushing with the velocity of a cataract, she leaped forth into the watery element. This launch is stated to have been the most beautiful and prompt that has ever taken place in our country. Thousands were present to witness it. All things were well managed, and not an accident occurred to mar the joyful excited feelings of the multitude. The cannon of the *North Carolina* thundered forth notes of welcome to the young Sea Queen; her band struck up "Hail Columbia;" ten thousand cheers shook the "welkin," and the launch was successfully accomplished.

The *Niagara* is of huge proportions; and, although called a *frigate*, she will be the largest line of battle ship in our navy. Her extreme length is 345 feet; her extreme breadth 55, and depth of hold 31 feet 3 inches. The weight of her hull is 2750 tuns—total weight, at 23 feet displacement, 5440 tuns. Her lines are beautiful; she sits graceful as a swan on the water; her entrance is fine and sharp; her stern is round, and she is destined to be a very fast sailer. Her builder is George Steers, constructor of the yacht *America*. The victory of that vessel has placed him in his true position as a naval architect.

Of the six new war steamers which were provided for by act of Congress, this is the only one constructed by a private builder. She is larger than any of the others, and is said to be better built and of a finer model. Her frame is of live-oak, the planking is of yellow pine, and the metal plating or bracing is on the outside of the frame, not on the inside, as in the other frigates.

The *Niagara* is to be a propeller; her machinery is being built at the Works of Messrs. Pease and Murphy, this city. We hope that her engines, rigging, and accoutrements will be promptly put in, and that none of those delays hitherto so peculiar to our navy yards, will interfere to hinder her from being pronounced "ready for sea" by next August, at the furthest.

### Anticipated Floods.

Great floods are expected this spring in the valleys of the various western rivers. The snow never was known to be so deep before; therefore, sudden rains would cause terrific freshets. We hope the snow will be dissolved by continued mild weather, instead of severe rain storms; but those who live in these valleys should make preparations for the worst emergencies.

We regret to state that, at the time of going to press, no intelligence had been received of e missing steamship *Pacific*.

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Scientific American.

NEW-YORK, MARCH 1, 1856.

### The Bees and the Honey.

A few months since we announced the formation, in Boston, of an Inventor's Association, the object of which, according to the published circular of the projectors, was "to enable the inventors and actual producers of new and useful articles, or objects of art, to bring them to the notice of the public with the least expense and greatest benefit to themselves."

The first step in this enterprise was the holding of a grand exhibition at Gore Block, Boston, in October and November, 1855. An account of the exhibition was duly published in our columns at the time.

The President of the Association was Mr. Ithiel S Richardson, inventor of the Atmospheric Tubular Telegraph, and the Secretary was Mr. Elizur Wright, an inventor and literary man.

In their circular calling upon exhibitors to contribute to the exhibition, these gentlemen voluntarily made the following pledges and statements:—

"The management of the affair is entirely in the hands of practical mechanics, and the arrangements of the Exhibition Rooms will be superintended by Col. Wm. Beals. * *

The entire proceeds of the Exhibition after paying the unavoidable expenses, and reserving ten per cent. to form a fund for the ulterior purposes of the Association, *will be divided among the exhibitors* according to the merit and attractiveness of their contributions, by a committee chosen by themselves. These terms, it is believed, are more favorable to exhibitors than any hitherto enjoyed by them, and they cannot fail to meet the cordial approbation of all original inventors and actual producers, when it is stated that the association designs to devote all the funds it may acquire to promote the interests of inventors and mechanics—first by making adequate provisions for future exhibitions, and secondly by establishing a weekly or monthly journal, which shall serve as a fit organ for the inventive talent of New England. *It starts upon, and means to stick to the principle that the bees themselves* have the *first claims* on the *sweets* as well as *the honors* of their own *honey*. If the history of past exhibitions is any test of the interest which the intelligent people of New England take in the inventive genius and artistic skill of their fellow citizens, it will be entirely the fault of those among us distinguished for such talents, if they do not retire from this with something more substantial *in their pockets* than lithographic diplomas, and something more satisfactory than settled or unsettled bills of expense." . . . . . .

The exhibition, it appears, was a decided success. More than eleven hundred contributors were brought out, and one of the finest exhibitions ever known in New England took place. Between six thousand and ten thousand dollars were received, which amount, less unavoidable expenses, was, according to the prospectus, to be divided among the exhibitors. But in getting at a division of the *honey*, some trouble ensued, and resulted in the appointment, by the exhibitors, of an investigating committee to examine into the transactions of the officers. The following are the names of this body, all of them, we believe, gentlemen of respectability:—John Hartshorn, Anson Hardy, S. T. Bacon, Gilbert Nurse, N. Low Murphy, all of Boston. Copies of their report can be had on application to any of them.

This committee discovered a most veritable *mare's nest*. It was ascertained that the much vaunted "NEW ENGLAND INVENTORS' AND MECHANICS' ASSOCIATION" consisted solely of three individuals, viz.:—Richardson, Wright, and Beals, the latter the manager. Well, what of that? They are certainly entitled to great credit for having gotten up so splendid an exhibition, and for having carried it out with so much success.

The committee next received an assurance from the the officers before mentioned that all of the receipts were eaten up in expenses, among which were items like the following:—

| | |
|---|---|
| Cash paid to Mr. Richardson for services as President, &c. - - - - - - - | $1000·00 |
| To Elizur Wright, for services as Secretary, | 224·36 |
| To Wm. Beals, as Manager, &c. - - - | 230·93 |
| For services of Richardson's son, brother and nephew, and services of Mr. Beal's wife, and lady friend, also for carriage hire for family, odds and ends, incidentals, &c. - | 397·38 |
| For pulleys and shafting on hand - - - | 350·00 |
| | $2252·67 |

The commitee intimate that perhaps there are other sums spent for purposes analagous to the above. They claim that, allowing all the other expenditures to be bona fide, as represented, the items above named are not quite fair, that the amount was justly due to the exhibitors, and should have been divided among them, as promised, &c.

Now, we beg to dissent from the opinion formed by the committee. We fear they have been too much prejudiced in their own favor. It appears to us that the above payments are correct. The gentlemen named were the life and soul of the whole thing. Did they not plan, organize, and carry the affair through? They worked hard, very hard. Is it more than fair that they should be paid for their services? We notice that there were some *queen* bees engaged in the enterprise. Are not they entitled to any of the sweets?

But who shall say the published contract has not been carried out? They started with the publicly announced principle, which, they emphatically stated, they meant *to stick to*, that "the *bees themselves* have the *first claim* on the sweets as well as the honors of *their own honey*." Nothing can be plainer, even from the evidence of its accusers, than that the Association religiously adhered to this policy. The whole subject seems to hang upon the question "Who were the bees in this case?" Whoever they were, to them belonged *the honey*.

In conclusion we would state that we have known of the formation of quite a number of Inventor's Associations, during the past few years, but believe that in every instance they have failed to give satisfaction. Instead of benefitting, they have generally assisted to impoverish those who fell into their clutches. Inventors who cannot help themselves will look in vain for aid from such sources. The *honey* will, in all cases, be taken care of by the *bees*.

### Black Oak Bark in Tanning.

The black oak (*quercus nigra* of botanists) grows spontaneously in the northern American States, and is used in the art of dyeing for producing colors on cotton called "bark greens, bark yellows, bark browns, and olives." The name by which it is commonly known is "quercitron bark," and constitutes the inner bark of the tree. The color which it produces in a simple aqueous solution is yellow. Its coloring properties were discovered by Dr. Bancroft, of London, in 1784. He discovered it while on a visit to America in search of new dyewoods, and the British Parliament granted him a patent for its exclusive use for twenty years. It was the principle substance employed in Britain for coloring yellow on cotton from the date of the Doctor's patent until about the year 1820, when the bichromate of potash was introduced,—which has now almost superseded it.

The bark of this tree, when used for tanning, makes leather of as good quality as white oak bark, but because its color is a light yellow, it will not bring the same price in the market as hemlock and white oak tanned leather.—The prejudice against it on account of the color is wrong, and is founded on ignorance, but tanners cannot afford to wait until this public prejudice is cured. Many of them, therefore, knowing the quality of the yellow bark, have consulted us in reference to some method that would enable them to use it in their vats and change its color, and make the leather tanned by it resemble the reddish hemlock, or the buff of white oak.

We will give them some information relating to substances which act as re-agents on the color of the bark, and then they can make experiments for themselves, and no doubt they will discover a method of giving the leather the desired color, although, with us the yellow leather would meet with the most favor.

Decoctions of this bark should always be made very strong, as it then deposits a portion of its coloring matter on cooling. It contains a great quantity of tannin and *quercitrine*—the coloring matter. Much of this coloring matter disappears if the decoction is allowed to stand until it becomes *stale*, a hint which may be of use to tanners. Lime water gives a yellowish red precipitate with a decoction of this bark; the muriate of tin a yellow precipitate; alum a yellow precipitate; the sulphate of copper, a greenish yellow precipitate; the sulphate of iron (copperas) a dark olive green. In dyeing cotton a brown color with this bark, the goods are first dyed yellow with it, then redwood and logwood liquors are given on the top of the yellow. It has been observed by dyers that the yellow forming the base of the brown color will disappear, as it were, by long handling of the goods afterwards in a redwood or logwood liquor. Tanners may take advantage of this property of *quercitrine* and use its decoctions, in the earlier stages of tanning, and then finish off with hemlock bark liquors. They may also get the proper shades of leather desired, by using the bark with hemlock in the same vat, or with catechu.

We have no doubt but this bark will yet come into more extensive use, and that the leather tanned by it will come up to a useful value, which does not lie in the color of it.

### Pearsall's Method of Preserving Flour and Meal.

It is well known that one of the great difficulties in the transportation and preservation of flour and meal is their liability to ferment and become sour, after a short time. Many a cargo has been rendered wholly worthless from this cause. When large quantities of flour or meal are packed together, as in flour barrels, the material heats and forments, beginning at the center of the mass, where no air can gain access.

In 1854, Mr. Thomas Pearsall, of Geneva, N. Y., patented a remedy for the evils above mentioned, his improvement consisting in the use of an open tube, running lengthwise through the center of the barrel. The air circulates through the tube, and keeps the latter always cool; consequently, the center of the mass of meal cannot heat. This plan, according to theory, ought to prevent fermentation. We are happy to say that the most thorough practical experiments have completely established the correctness of this theory, and demonstrated the great value of his discovery. Samples of flour that have several times crossed the Atlantic, and been sent on very long sea voyages, have invariably preserved their sweetness. Indeed, a singular fact has been ascertained, viz.: that flour and meal put up in the ventilated barrels of Mr. Pearsall become improved in quality by age. The testimony on this point is conclusive.—The invention is already becoming well known in Liverpool, and we notice by a recent British price current, that Indian meal, put up in "Tubular Barrels," is quoted as selling at an advance of 50 cents. per barrel more than the meal packed in the ordinary manner. It is believed that when the advantages of this discovery become somewhat more extended, the quotation prices will rise still higher, for the purchaser will always feel sure, not only of getting fresh and sweet meal or flour, but the quality will also be better. There is no musty smell or taste, no matter how long the article is kept. Mr. Pearsall's invention is patented in Europe. It will be found illustrated on page 240, last volume of our paper.

### Our Prizes.

The following letter from one of the successful competitors for our late prizes, exhibits, in a few but eloquent words, the benefits of the prize system adopted by us. The writer, it will be noticed, has taken another prize before the present. Such acknowledgments encourage us to continue the plan of paying liberal rewards in cash to those who labor for the extension of the SCIENTIFIC AMERICAN:

MESSRS. EDITORS—I see that I have again been successful in gaining a prize for my list of subscribers to the SCIENTIFIC AMERICAN. It would give me much pleasure to be able to extend the circulation of so valuable a publication as yours without any compensation, but a prize of thirty dollars to a man in my circumstances makes it doubly so. Please send the amount I am entitled to by mail, or otherwise, as in your judgment is most safe and convenient, and receive my thanks for your liberality. JOHN GARST.

Dayton, Ohio, Jan. 29th, 1855.

### Corrugated Iron.

Experiments have been made at Washington to ascertain the strength added to iron by corrugation. A plate three inches long and four broad, so thin that, supported at the ends, it would bend of its own weight, when corrugated sustained a weight of 600 pounds. Corrugated iron has been adopted for many camp utensils. A camp bedstead of this iron weighs 50 pounds, and is equally strong with the English camp bedstead, weighing 150 pounds. A corrugated iron water-tight wagon body, that floats from 2000 to 2500 pounds of freight, besides the running gear, and weighs less than a wooden carriage body to carry the same freight, has also been adopted into the service of the United States, besides other articles of the same material. The additional strength of the iron in this form is obviously upon the principle of the arch. A circular tube is, in proportion to its amount of material, the strongest of all forms.

Corrugated iron is stronger than plain iron because the metal is contracted in bulk as well as arched in form. The first application of corrugated plate iron for the purposes of springs and to withstand great sudden strains, so far as our knowledge extends, was made by H. T. Hyde, and was illustrated on page 60, Vol. 4, SCI. AM.

### A Word to the Wise.

The next number of our paper completes the half year, and affords a most excellent opportunity for new subscribers to enter their names. Singular as it may seem, men require to be reminded, and even urged, to the performance of duties which involve their own good. The SCIENTIFIC AMERICAN is, by universal consent, declared to be a source of special benefit to every individual who chooses to read it. Yet we are obliged to lay down "line upon line and precept upon precept," in order to increase the number of our patrons. We wish they would save us this labor by volunteering, *en masse*, to fill up our subscription books.

One of the rules of our business is to discontinue the sending of the paper as soon as a subscription expires. Those who have only paid for a half year are therefore requested to remit, immediately, the money requisite to pay for the balance of the volume. If this is not done we shall be under the disagreeable necessity of crossing off their names, and they will be deprived of many cheerful interviews with the SCIENTIFIC AMERICAN.

### Recent American Patents.

*Marble Sawing Machine.*—By W. and G. Bull, of Towanda, Pa.—This machine is designed for the sawing of blocks of marble on a taper, both sides being cut simultaneously. Such blocks are used for monumental purposes. The improvement consists in a novel arrangement of adjustable guides, so that the angles at which the saws cut can be conveniently changed.

*Improved Seed Sower.*—By Stephen Gorsuch, of Altona, Pa.—In most of the seed sowers now used, the grain falls from the seed-box down through close tubes into the earth. The tubes are shod in front with small plow points, that open the furrows, in which the grain drops; close behind the tubes are suitable shares, that cover the furrows. The grain is not exposed to the eye during the operation, and therefore, if any of the tubes become clogged up so that the seed cannot fall, the fact is not readily ascertained by the attendant, and uneven sowing is the result.

The object of the present improvement is to remedy the evil just mentioned, and for this purpose the inventor makes slits or openings in the seed tubes, both in front and behind; said openings extend nearly the whole length of the tube, and are covered with wire cloth. The openings permit the entrance of light, and enable the attendant to see the seed as it falls, and to detect at a glance any choking up of the tubes.

*Improvement in Machinery for Rolling Iron.*—By Corliss and Harris, of Providence, R. I.—The common method of rolling iron is to pass it, in a hot state, between heavy metallic rollers, the latter revolving in fixed bearings.

The object of the present invention is to roll iron into sheets that are of a tapering thickness; that is, thicker at one edge than at the other. The long wrought-iron hinges used upon heavy doors are cut from iron of this description.

The improvement consists in placing the iron to be rolled, properly heated, upon a flat bed, and causing a roller to traverse over the iron until it is suitably rolled out. The frame in which the roller is carried is subject to cer-

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tain adjustable guides, by means of which the roller is readily made to press harder and harder as it advances, and thus taper down the iron beneath. The above is an excellent improvement.

*Blind Slat Tenoning Machine.*—By John H. Palmer, of Elmira, N. Y.—Two small cutter heads are arranged upon the extreme ends of a pair of mandrels which have a horizontal lateral movement. The slats being introduced between the cutters, the latter are moved up and operate on the slats. Two round tenons are simultaneously produced, one at each end of the slat. This is a very rapid machine. The special novelty consists in cutting both tenons at once, the common machines being only capable of operating upon one end of the slat at a time.

*Hemming Apparatus.*—By S. P. Chapin, of New York City.—This contrivance is an attachment to sewing machines, and its object is to fold over the edges of the cloth into the proper condition for hemming, while the cloth is being fed into the machine. There are a great many species of garments and articles made by the aid of sewing machines, on portions of which some hemming is required. The invention here noticed is capable of a variety of applications, and is a highly useful improvement.

*Improvement in Temples for Looms.*—By R. Reynolds, of Stockport, N. Y.—That portion of the weaving loom called the "temple" is a contrivance for stretching and keeping the sides of the cloth stretched, as fast as it is woven. But for the temple the cloth would shrink up and impede the movements of the loom.

The subject of this patent belongs to the class commonly known as jaw temples, and is intended to be attached to the breast beam of the loom in such a way as to be capable of moving forward thereon. The first improvement consists in extending the upper jaw so as to form a lever, and giving the forward extremity such form, that, by its contact with a roller upon the breast beam, the temple may be retained in a proper position to gripe the cloth as near to the last filling thread as is desirable; the temple is also allowed to slide forwards under the said roller, when struck by the lay near the termination of every beat, and is thus caused to release the cloth. When the shuttle is arrested or retarded so as to be caught between the temple and reed, the temple is arranged to move forward with its jaws open, and thus prevent injury either to the reed or web.

The second improvement consists in the introduction of an elastic or yielding medium between the jaws of the temple, for the purpose of holding the cloth more securely, and at the same time protecting the selvedge and all that part of the cloth which is griped by the temple, from injury.

*Machine for Making Ship Thimbles*—By Corliss and Harris, of Providence, R. I.—The thimbles here mentioned are the iron rings or eyes which mariners use in the rigging of vessels to prevent the chafing of ropes when attached to hooks, staples, bolts, and the like. The surface of the thimble is concave, and the rope is bound around it.

The iron from which these thimbles are made is commonly rolled out into flat bars, cut to the proper length, and bent up into circular form. The flat ring thus made is then placed upon a peculiar shaped mandrel and the pressure of rollers applied, in order to produce the required convexity of the thimble. The operations of bending, rolling, and removing the thimble from the mandrel are comparatively slow and expensive.

The present improvement consists in the use of an anvil, having a convex surface, upon which a pair of hammers, operated by steam power, are made to fall in such a manner that if flat bars of iron are fed in upon the anvil they are quickly hammered up into complete thimbles ready for use. The operation is much more rapid than the old plan, and the quality of the work is superior.

*Note.*—The foregoing inventions were patented on the 19th inst. The claims of the patentees are published in the official list in another part of this paper.

*Improvement in the Manufacture of Iron*—Mr. J. Harrison, of St. Louis, President of the Co. owning the great Iron Mountain of Mo., has made a valuable improvement in charging boxes, for iron furnaces. The box is of the same size as the furnace, cylindrical in form, with a movable bottom. In use, the charge of coal, ore, and limestone, is placed in the box, rolled on a railroad, immediately over the top of the furnace, and then discharged through the movable bottom. In this manner the charge is thoroughly spread out and intermingled; the result, Mr. Harrison tells us, is an increase of between fire and ten per cent. in the production of iron. This is an important gain. The old method is to dump in the charge from barrows; but when thus thrown it falls in a heap in the center of the furnace, where the ingredients cannot so readily melt and combine.

*Improvement in Garments*—By Amasa S. Thompson, of Springfield, Erie Co., Pa.—This is a method of making a seamless sack coat out of a single piece of cloth. By a few changes in the loops and buttons the garment may be converted into a cloak, and then into another formed garment called a talma. These changes are all made with rapidity. One piece of cloth is thus caused to serve several different purposes. The expense is no greater than for a common sack coat.

### Incrustations in Steam Boilers.

Notwithstanding we have published a great deal of information on the subject of boiler incrustations, we very often receive letters asking for more light on the subject. We have now before us a letter from J. T. Milton & Co. of Coeymans, N. Y., which contains the following:—

"We are using a new locomotive boiler of about 65-horse power, which is fast becoming covered with scale, and we have tried various substances to prevent it, but without success. The water used is hard limestone water. We will pay one hundred dollars to any person who will inform us of any substance we can use that will effectually prevent the formation of scale, without injury to the boiler."

In a letter from Mr. Van Dalsem, of Lexington, Ky., he says:—

"What is the best remedy to remove limestone formations in high-pressure steam boilers. Some persons here use molasses, blocks of hickory, charcoal, bones, &c. Is there anything better than these substances? if so, information of the same will be very useful to us here. Our water comes off limestone rock."

We may not be able to give our first correspondents the precise information that would merit the requirements of their proposition, but we will give such information on the subject as will not only be useful to them, but to all our readers who employ "hard water" in steam boilers.

What is the scale or incrustation which forms on the inside of steam boilers? It is a crust of stone, deposited on the metal of the boiler from the water which has been evaporated. This crust is a non-conductor of heat; it therefore presents a constant resistance to the heat penetrating from the fire in the furnace to the water; hence it is a "fuel waster." But how is this scale or crust formed from evaporated water? Water is a great solvent of earthy matters. Rains enter the earth and dissolve some of the saline matter of the soil and rocks with which they come in contact, and carry them in solution into wells, streams, rivers, and lakes. The waters of some springs and streams contain less earthy matter than others; and owing to the geological character of a country so is the water impregnated with different saline matters. The crust which forms on the inside of the steam boiler of Messrs. Milton, from water in Coeymans, N. Y., is different in its nature from that formed from the water in the boiler of Mr. Van Dalsem, at Lexington, Ky. The crust in the former boiler, we judge, should be composed of silica, (sand material,) alumina, (the basis of clay,) oxyd of iron, some chloride of sodium, (common salt,) and carbonate of lime. The crust—judging from the geological character of the country—will be of a light brown or buff color. On the other hand, the crust which forms in the boiler at Lexington will be composed principally of the carbonate of lime, the carbonate of magnesia, some silica, and perhaps traces of iron. If the latter is present, the color of the crust will be buff, if not present it will be whitish. It is very evident that the same substance which might prevent crust forming in one boiler, or which may remove it, may exercise little or no effect in preventing or removing the crust in other. This is the reason why blocks of oak and various kinds of saw dust have prevented scale forming in some boilers, while they have utterly failed to do so in others which were fed with a different kind of water.

A gallon of pretty hard water contains about 40 grains of saline matter in solution. Some waters do not contain more than a fourth of this amount. But allowing the water used at Coeymans to contain this amount, it being 65-horse power, it must evaporate 3900 gallons per day, (ten hour's work) thus leaving 156,000 grains of solid matter behind, which, if not removed, and has any electrical affinity for the iron will soon adhere to it, and form a scale of 27 lbs. per day, 162 lbs. per week, and 2106 lbs.—nearly a tun, in three months. We can thus easily conceive how soon a crust of greater weight than the boiler itself may be formed within it. And allowing the water to contain only ten grains to the gallon it will form a crust of nearly 7 lbs. weight every day. Let Messrs. M. weigh on fine accurate scales, a clean copper or iron vessel; then measure a gallon of water and weigh it; then evaporate the whole very slowly, and then weigh the vessel, which will contain the earthy matter of the water adhering to its sides and bottom; the increase in the vessel's weight after evaporation will indicate the quantity of saline matter held in solution by the water, and will give them a correct idea of its stony nature.

There is a well-known and effectual remedy for preventing scale in all steam boilers. What is that? Don't use hard water. Or if you use such water, remove all the earthy or saline matter from it before you admit it into the boiler. If Messrs. Milton would make large reservoirs and use rain water for their boiler, and exhaust the steam into a tank, and thus use the same water over and over again they would never be troubled with scale. This would be a sure preventive, and every person who uses a steam boiler, if he has room to construct and use large rain reservoirs, should do so.

But those who cannot build such reservoirs for want of room or any other cause, and who are compelled to feed their boilers with hard water, have a remedy for scale by precipitating the saline matter in the water before it enters the boiler. The patent apparatus illustrated on page 113, this Vol. Scientific American, will accomplish this. Another plan to effect the object for limewater (and which will also be effectual, in a measure, for the water at Coeymans) is that furnished to us by J. H. Balsley, of Dayton, Ohio. He says:—"We have been running an engine four years, using boilers 40 inch. diameter and 22 feet long, 15 inch flues, running ten hours per day. We exhaust into a box that is 8 feet high, and of an area of 20 square inches—a narrow rectilinear box. The feed water enters at the top of this box, and finds its way down through a pack of wood shavings to the bottom, and then goes to the feed pump. The uncondensed steam passes out at the top of the box. About half a peck of lime is taken from this box every week. We put a pint of molasses into the water of the feed pump twice a week, and have been doing this for two years. We clean out the boiler every three months, and find about half a bushel of brown mud in it, but no scale. Some scale had formed in the boiler before we commenced using the molasses, but it has now nearly all fallen off. Before we commenced thus to use the filter and the molasses, we had to clean out our boiler every six weeks; the pipes then used to be choked with lime, but now we have no trouble of the kind. There are four or five persons here who have used molasses for five years with the same results."

Here, then, we have positive testimony respecting a method of preventing limestone scale in steam boilers. The action of exhaust steam on the incoming feed water is to disengage the lime matter, because it is held in solution by carbonic acid, which is easily driven off by heat. The effect of the molasses is to envelope the moleules of other saline matters not removed by filtration, hold them in solution, and prevent them adhering to the boiler.

If scale is already formed on the inside of a boiler, of gypsum (sulphate of lime) and carbonate of lime, (chalk,) the introduction of some salammoniac into the boiler will dissolve it, and also prevent scale arising from the water. The salammoniac decomposes the sulphate and carbonate of lime, forming sulphate and carbonate of ammonia and the chloride of lime—all very soluble salts. About one pound of salammoniac is sufficient for about 50 cubic feet of water. The great objection to the use of salammoniac is that the carbonate of ammonia formed, is liable to pass off with the steam and rapidly corrode any copper or brass fittings on the engine. The useful effects of molasses, glucose, and gallic acid in preventing scale forming in boilers have long been known. Potatoes, wheat bran indian meal, &c., have been used with effect in furnishing glucose; molasses for furnishing saccharine matter, and blocks and saw-dust of oak, mahogany, logwood, &c., for furnishing gallic acid. The objection to the use of oak and mahogany saw-dust is stated to be an injurious action on the metal of the boiler; that to the use of bran, indian meal, and potatoes is, "they cause *priming* in the boiler;" and molasses, when freshly introduced, is said to do the same. By coating the interior of a boiler with a composition of tar, linseed oil, and plumbago, scale will be prevented forming for a long time; but this is a troublesome method.

Having said this much on the cause of boiler incrustations and the remedies, the climax of the whole matter is, that scale can be prevented forming in steam boilers by four methods. One is to use soft or rain water only; the other is, to purify hard water before it is used; the third is, to use the mixed process of filtration and molasses; and the fourth method is, the use of extraneous substances in the boiler to keep the saline matters in solution, and to *blow out* these frequently. The subject of incrustations in boilers is a most important one when we take in consideration the fact that the water of all wells, streams, and lakes, contain some salts in solution, and that incrustations are liable to be formed in nine-tenths of all the boilers used in this country. We have no doubt but incrustations cause the loss of some millions of dollars every year, just in the waste of fuel alone, not counting injury to the metal and loss of time in cleaning out, &c.; besides scale is a most formidable objection to the use of the best boilers—the tubular kind.

Those who can, should use pure water, like rain, in preference to every other kind. But when this is impossible, the hard water should be purified before it is admitted into the boiler, and a little molasses insures safety in case perfect deposition is not effected in the filter. We do not counsel the use in the boiler of any of the extraneous substances named; but in many cases, if discreetly used, they may be employed advantageously both in removing and preventing incrustations.

### Cooper's Torpedo.

Peter Cooper, Esq., of this city, describes in the *Express* a nautical torpedo for destroying enemies vessels' laying off the coast. All that is new about it is simply the guiding of it from the shore by strong wires attached to two rudders, these wires to be reeled off a windlass when the torpedo is going out, and reeled on it when it is coming back. Regarding the method of raising the steam to drive its engine, he says:—

"This torpedo (a peace-maker as I will call it) was a small vessel with a rotary steam engine driving a screw propeller. The steam was generated by a mass of red hot iron placed in a cavity answering to a fire-place in the boiler, which caused steam to generate with great rapidity."

All persons unacquainted with the science of steam entertain such ideas regarding the raising of it with wonderful rapidity by means of red hot iron. But when the Cooper Institute is finished and in full operation, Mr. Cooper will, no doubt, learn from some of the scientific professors employed there that his plan to generate steam is a scientific method to do so in the slowest manner possible, owing to the spheroidal condition which the water assumes when exposed to red hot surfaces.

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## TO CORRESPONDENTS.

S. E. T., of L. I.—The sketch of your improvement in grates so as to clear them of clinker is not new. There is now a patent for a grate which covers substantially the same arrangement.

H. C. C., of Iowa—We have given all the information we can about the book. If its publishers will not condescend to answer your inquiries, we cannot help it. It is ungentlamanly, to say the least.

W. T., of Ct.—Whose communication was replied to in the column "To Correspondents," in No. 19, Sci. Am., is requested to send his address to O. T. A., box 2342, New York City.

J. M. P., of Iowa—The instrument you describe for measuring the time required for daguerreotype sitting is new, and we have not much doubt of its being sufficiently so to justify an application for a patent. Its value will altogether depend upon its utility, and to determine this, you had better submit it to operators in the art.

W. S., of Pa.—The English government does not grant patents for Canada, and the Canadian laws do not allow the grant of patents to any other than to resident subjects who must be the inventors.

J M. H., of ——The hydraulic press has no superior for exerting severe pressure in expressing oil from seeds. Knives on a rotary shaft are best for cutting up the cake. The best way to dry organic matter on a large scale, is a stove room heated with large flues from furnaces.

D. W. D., of Phila.—The best thing you can do for styes on the eye lids of children, is to wash them with fine soap and milk warm water, keep them clean and leave the rest to nature.

A. R., of Md.—A good work on millwrighting is much wanted, especially one containing plain directions for making hoppers, and all kinds of bevel work. We may yet find a rule for you.

A.P., of Mass.—We have not yet come across your propeller drawing. Will perhaps notice your patent on an other occasion.

J. E. H., of Tex.—Your draft is at hand, and the Office has been instructed to re-construct your model to meet its fastidious requirements.

H. A. R., of N. Y.—We cannot tell you where to get the best potato digger in use.

J. L., of Ky.—The rotary steam engine described by you, appears to be operated on the re-action principle, which is not a new method of steam application. It is the most simple of steam engines, but is far from being economical.

S. H. W. of Mass.—If you connect the stem of the valve belonging to a hydraulic ram with the piston rod of a pump, you can thus force water to a hight according to the power of the ram.

W. D. P., of Wis.—"Clarke's Railway Machinery" costs sixty-two and a half cents per number; the postage is five cents. The cost of it is the same in numbers as bound, excepting the binding. You can have them sent in one or more numbers.

G. P., of Md.—If you multiply the area in feet into the number and length of single strokes per minute it will give you the number of cubic feet of air per minute driven into the furnace. Subtract two-fifteenths of this for the two pounds pressure on the square inch. This allows for the pressure at 15 lbs. on the square inch, doubling the volume.

H. H. A., of Ill.—The anti-explosive fluid for burning is oil, or purified turpentine. All fluids for burning containing alcohol are explosive when vaporized and mixed with air, not otherwise.

B. A., of Wis.—Camphene is purified spirits of turpentine. Burning fluid is composed of ninety parts of alcohol and ten of camphene. Mix cold.

J. A. B., of Tenn.—Some of the silver mountings are galvanized, and some are fine plated. A thick coat can be deposited by the battery. White metal, or pewter, is the best body for silver plating, because it is white in color, and if the silver rubs off in one part it does not present an ugly contrast, like copper plated ware.

A. A., of Phila.—An organ pipe twice the diameter of another will produce greater volume of sound, but if both pipes are the same length, the note emitted by each will be the same.

O. H. I., of Pa.—The project of establishing a railroad in Broadway has been abandoned, we believe. The people would never submit to the use of Broadway for that purpose.

U. H. H., of Mo.—We make no charge for answering such questions as you propound. The Irving steam boiler we consider a good one. The office of the Company is 347 Broadway, N. Y. We do not know anything about the practical working of Frazee's saw mill.

J. S. I., of Ohio—The sketch of your corn stalk cutter has been examined, and we do not discover in it anything particularly new. A similar machine, cutting upon the same principle, is illustrated in Rees' Encyclopedia. It is an old invention, we should think. The details are somewhat different, but this is of no importance in a patentable point of view. We will carefully examine your remarks on paper making and on the patent laws.

W. H., of Ill.—We do not know where you can find a list of the passengers who were on board the ill-fated *President* in 1840. We should think a list could be found in the New York Custom House.

B. H., of Mich.—We never saw one of Frazee's patent saw mills in operation, therefore cannot speak understandingly of its merits.

B. G. K., of Nebraska—We have entered your name for six months subscription to the Sci. Am., as we are unable to furnish you with any good work on the steam engine for one dollar.

T. J., of Williamsburgh—Must furnish us with his name before we can consent to answer his inquiry about seed sowing machines.

T. B., of Pa.—Your improvement in wheel hubs has been examined, and we consider it new and patentable. Nothing like it has ever before been brought to our notice. We will send you a circular of general advice whenever you can furnish us with your post office address.

B. F. H., of Mo.—The number containing the description of the Russian stove cannot be furnished. We are entirely out of them.

A. E., of Wis.—We returned the drawings of your scroll box by express, on the 13th inst.

W. C. J., of Ohio—In the experiments made by Mr. Ewbank upon propelling, he tried the same principle as you describe. You could get no patent for it.

J. B. F., of Mo.—We have already published as much as we intend to in answer to the wants of "Farmer." It is a good thing, and we have had enough of it to satisfy our appetites.

C. F. S., of Mass.—If you have a broad cast sowing machine that will answer the wants of J. T., of N. J., bring it out through the columns of the Sci. Am, and he will be sure to see it. We do not remember his name.

J. W. Bryant, Welaka, Fla.—Wishes to procure a shingle machine for riving, shaving, and jointing shingles from cypress.

S. F. W., of N. Y.—We are not aware of the existence of any patent on the thimble skein to which you refer.—If it is patented, the law requires the date of the patent to be stamped upon it.

W. O. H., of Tenn.—We cannot undertake to cypher out your communications. They are very unintelligible, and are puzzlers, especially if one has little time to spare in the examination of blindly prepared documents.

T. H. W., of Va.—It is true that the alcohol will evaporate in the gas meter, but the only remedy is to fill it up frequently, or keep the meter protected from frost. It has been difficult to do this lately. A blanket is of little use as a covering in such severe cold. If the meter were not varnished, or if made of copper or brass, a small jet of gas kept burning under it would prevent it freezing.—This would be a simple arrangement.

J. R., of La.—Your communication will receive attention.

C. W. B., of Pa.—The article on the blow pipe is rather too long for publication. In what number of the "Chemist" was it published?

H. F., of N. J.—Power can be communicated through water to any distance. The power applied must be proportional to the resistance to be overcome.

D. S. G., of Pa.—The process for obtaining aluminum is so complex that the metal is still as dear as gold. Your shale will yet be employed for making alum. Of this we have no doubt.

H. C., of Fla.—The ventilating hat described by you cannot be patented. A hat similar in construction is well known to the trade here. The paper relating to the cotton seed oil we have not received.

F. S., of Texas—We should consider the result of an application for a patent on your broom improvement as very doubtful. We cannot encourage you to apply. We endeavor to obtain and publish every new fact relating to the progress of electrical science.

J. J. W., of Ill.—Woad makes a more brilliant blue than indigo, but is not so durable, and we believe it is more troublesome and no cheaper. We cannot furnish all the numbers containing the articles on dyeing.

J. W., of Pa.—We have received your article, but you perceive, from the nature of the articles since published in our columns, we have not had room for it.

R. H., of Ohio—We do not wish to give an opinion in any controversy of a business nature. We will only say that it is easy to calculate how deep the tail race of the wheel should be to deliver the water freely. The quantity of water which falls in a minute must therefore be known to judge the question correctly. Your tail race should have been with its present width, eight inches deeper at least.

C. A. N., of Geo.—Wishes to purchase a machine for making cotton rope from 1-4 to 1 inch diameter, and in a continuous coil.

Money received at the Scientific American Office on account of Patent Office business for the week ending Saturday, Feb. 23, 1856:—

H. H., of Mass., $720; J. A. K., of N. Y., $275; G. I. B. of O., $25; J. N., of Conn., $25; I. W. B., of Md., $30; A F. W., of Ky., $20; H. S. V., of Ind., $10; E. F., of Conn., $30; W. B., of N. Y., $250; P. L., of N. Y., $30; W. H. H., of Mass., $8); G. H. L., of N. J., $30; H. B. & Co., of N. Y., $100; A. L., of Pa., $25; D. J. O., of Pa., $30; J. R P., of N. Y., $200; G. W. F., of Mass., $25; J. H., of Mo., $25; J. R., of O., $30; W. C., of Ind., $10; L. J., of Conn., $30; J. F. O., of Ala., $30; J. T. B., of N. Y., $30; J. C. P., of O., $110; N. & H., of Ind., $70; L. & A. T., of Conn., $25; R. B. S., of Pa., $30; G. P. G., of N. Y., $20; H. C. H., of Vt., $30; C. H. R., of Me., $25: C. B., of Ind., $10; McN. C. & S., of N. Y., $100; N. M., of N. Y., $15; J. & B., of N. Y., $100; O. L. R., of N. H., $17; T. C., of N. Y., $55; A. W. A., of Mass., $30; Q. A. F., of Ill., $30; O. W. S., of Conn., $25; W. H. B., of N. Y., $30; R. G. P., of N. Y, $25; J. A. A., of Conn., $55; W. A. C., of Conn., $30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Feb. 23:—

H. B., of N. Y.; W. H. H., of Mass., (2 cases); J. N., of Conn.; A. L., of Pa.; G. I. B., of O.; G. W. F., of Mass.; J. H., of Mo.; L. & A. T., of Conn.; B. & S., of Ct.; O L. R., of Mass.; W. A. C., of Conn.

### Important Items.

Models—We shall esteem it a great favor if inventors will always attach their names to such models as they send us. It will save us much trouble, and prevent the liability of their being mislaid.

Patent Claims—Persons desiring the claim of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office stating the name of the patentee, and enclosing $1 as fees for copying.

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**PATENT FOR SALE**—Improved Cooking Stoves—adapted to North, South, City, Shipboard, wherever great economy of fuel is desirable. A very profitable investment for Stove Manufacturers, Capitalists, &c.—Agents wanted to sell rights for States. Address JOS. B. LANCASTER, Tampa Bay, Fla. 25 2*

**STEAM PUMPS AND FIRE ENGINES**—Steam Pumping Engines for wrecking purposes, Irrigating and Draining Lands, Deep Mining Shafts, Quaries, and Excavations, Railroad Stations, Factories, Public Institutions, Hotels, Gas Works, Steamers, &c. Also a large and improved class of Pumping Engines for supplying Cities, Towns, and Villages. Apply to H. R. WORTHINGTON, 28 Broadway, New York City. 25 13*

**NORTH AMERICAN MACHINE AND COOPERAGE Co.**, at Elmira, Chemung Co., N. Y.—Manufacturers of Trapp's Patent Barrel Machines, being the only establishment in the world that manufactures machinery for all varieties of cooper ware, viz.: Tight Barrels, such as Pork, Beef, Whiskey, Beer, Fish, Oil, Spirits of Turpentine, Beef Tierces, Butter Firkins, White Lead Kegs, Flour, Salt, and Lime Barrels. Stave and Heading Saws constantly on hand. Also Rights under Trapp's patent for sale. M. H. FERRIS, Agent, Elmira, N. Y. 25 6*

**WOODWORTH'S PATENT** Planing, Tonguing, Grooving Machines—Double machines plane both sides, tongue, and groove at one and the same time, saving one half of the time when lumber is required to be planed on both sides. Large assortment constantly on hand. Also steam engines and boilers of the best quality. Warranted to give entire satisfaction to purchasers.
JOHN H. LESTER,
25 8* 57 Pearl st., Brooklyn. L. I.

**TO INVENTORS AND OWNERS OF PATENTS**—The undersigned have established a house at St. Louis for the introduction, sale, and exhibition of machinery, inventions, and patent rights. They will receive models and samples for exhibition, and will buy or sell rights for Iowa, Illinois, or Missouri, when terms suit, address JAS. W. MACDONALD, & Co., 87 4th st., St. Louis, Mo.
P. S. J. W. Macdonald may be consulted or addressed for a few weeks, at 343 Broadway, New York. 1*

**WANTED**—A Foreman to take charge of a Door, Sash, and Blind Manufactory. Also a Foreman to take charge of a Planing Mill. None but those entirely competent, and the best of references, need apply. Address COTES & DAVIES, Davenport, Iowa. 25 4*

**THE SUBSCRIBER WILL SELL** at a Bargain, his Right to an improved Lathe for Turning Ox Bows. Will turn from 30 to 60 per hour, and follow the grain, leaving the bark on. If desired, a working model will be furnished. Address MARCUS PRATT, Brattleboro, Vt. 1*

**NEW INVENTIONS WANTED**—I wish to purchase one or more Original Inventions in the Stationery line. WILLIAM BURNET, Post Office, Box 4532, New York City. 25 3*

**BOILER INCRUSTATIONS**—No scale will form in the boiler when Weissenborn's Patent Incrustation Preventor is used. At the same time the apparatus is the best Heater that can be obtained. Apply to E. W. SARGENT, Delmonico's Hotel, New York City. 25 12*

**PATENT STAMPS** conferring the privilege of manufacturing or having manufactured Arthur's Patent Air-tight Self-sealing Cans, will be sold during the coming season throughout the South, West, and South West. These stamps can be sent by mail. For further information address R. ARTHUR, 252 Walnut st., Philadelphia, Pa. 24 5*

**J. BRYAN**, Metal, Iron, and Copper Sash Maker, 219 Center st. near Grand, New York. Church, Cottage, and Greenhouse Sashes, Domelights, Skylights, and Ventilators; Store Fronts, Doors, &c., &c. J. B. begs to call the attention of architects, church committees and builders to his metal sashes, which are so well adapted for churches, cottages, and public buildings, their great strength, lightness, and durability making them far more desirable than lead or wood lights. Contracts for supplying and glazing plain enamelled and colored glass undertaken, also orders for wire matting, &c., for church or other windows, on moderate terms, and promptly executed in any part of the United States. 24 3* eow

**JOURNAL GUARD FOR GRIST MILL SPINDLES**—I have applied a device to my mill spindles which effectually keeps all grit and dust from the journal It also keeps rye and wheat from leaking through the eye of the bed-stone when the box gets loose, as is sometimes the case in all mills. Any miller can apply the same to his mill for 25 cents. By sending a line to my address at West Sterling, Mass., enclosing $1, I will give a full explanation. L. W. NICHOLS. 24 2*

**TO MANUFACTURERS AND CAPITALISTS**—The proprietor of a water power in the State of Iowa, situated within 28 miles of the city of Dubuque, which is capable of running fifty pairs of burrs, or machinery of any kind equivalent thereto, is desirous of disposing of a portion of the same to individual manufacturers or a Company, for the purpose of securing the erection of factories on an extensive scale. The price or terms are no particular object, and both will be made satisfactory to persons having the means and desiring to invest them in the improvement of this power. Correspondence is solicited. Circulars containing full description of the town and water power may be had of J. B. DORR & CO.,
24 3* Dubuque, Iowa.

**J. HERVA JONES**, Inventor of Randall & Jones' Patent Hand Planter, and proprietor of New York, Michigan, Wisconsin, Minnesota, and Northern Illinois, Superior to all. Machines and Rights for Sale, Agents wanted. Send for a circular. Rockton, Winnebago Co., Ill. 22 5*

**WM. BURDON'S STEAM ENGINE WORKS.** 102 Front street, Brooklyn, N. Y.—Engines from 3 to 40 horse power constantly kept on hand, of the latest styles and patterns, with all the modern improvements. Engines from 40 to 200 horse power made to order, high pressure or with condensers. Also portable engines with boilers, and engines attached with wheels for pile-driving and wood-sawing, circular saw mills, upright engines that take up a very small space for printers' and pumping engines, steam pumps of various sizes, rotary pumps and mining pumps; also quartz mills and stampers for copper and gold; improved hoisting machinery for mines or stone quarries: also sugar machinery, sugar mills, sugar kettles and vacuum pans, saw mills, grist mills, marble mills, rice mills, screw and hydraulic presses, boilers, and castings of every description. The reputation that Wm. Burdon has sustained for the last 20 years, as an engine builder, is a guarantee for his work. Miners and manufacturers will find it to their advantage to patronize his establishment, as not less than one hundred finished engines are kept on hand. With the large lot of boilers, shafting, pulleys and hangers kept on hand, orders can be shipped the same day they are received. Also a large number of second hand engines of various sizes for sale. Second hand engines bought or exchanged for new ones or sold on commission. The great facilities and perfect system and order carried on in this establishment, enables Mr. Burdon to sell lower than any other establishment in the country for the same material and labor. Advice given gratis, drawings and plans made at the shortest notice. 4*

**FILMER & CO.**, Electrotypers, and Manufacturers of Electrotype Materials, 128 Fulton st., N. Y. Molding Presses, Batteries, Cases, Backing Pans, Shaving Machines, Metal Kettles, Planes, Blocks, Building Irons, etc., etc., on hand, or furnished at short notice, and at moderate charges. Adams' Improved batteries and black-lead machines also for sale. 23 tf

**LINEN MACHINERY**—JOHN R. McNALLY Champlain, N. Y. Agent for the sale of linen machinery of every description, new and second hand. Engineers and machinists tools, and linen yarns of every number and quality. 22 13*

**N. AUBINS UNIVERSAL PORTABLE GAS GENERATOR**—Patents granted Sept. 25, 1854, and Jan. 8, 1856. For factories, hotels, country houses, villages, &c. Warranted as more simple and economical than any other known apparatus. Cost of gas less than 1-4 of a cent per hour for each 5-foot burner. Can be managed by a house servant, as the joints are never disturbed, either for operation or cleaning, and the construction of the apparatus renders explosion impossible. A gold medal was awarded at the late Fair of the American Institute, N. Y. For works or rights under the above patents, apply to H. C. HAWLEY & CO., Albany, N. Y. 22 4*

**PORTABLE STEAM ENGINES.**—S. C. HILLS, No. 12 Platt st., N. Y., offers for sale these Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, from 2 to 10 horse power, suitable for printers, carpenters, farmers, planters, &c. A 2 1-2 horse can be seen in store, it occupies a space 5 by 3 feet, weighs 500 lbs., price $240; other sizes in proportion. 3 e3w

**CIRCULAR SAWS**—We respectfully call the attention of manufacturers of lumber to the great improvements recently introduced in the manufacture of our Circular Saws. Being sole proprietors of Southwell's patent for grinding saws, we are enabled to grind circular saws from six inches to six feet with the greatest accuracy and precision. The impossibility of grinding a saw without leaving it uneven in thickness has always been acknowledged by practical saw makers. This causes the saw to expand as soon as it becomes slightly heated in working. When this takes place the saw loses its stiffness, and will not cut in a direct line. We will warrant our saws to be free from these defects; they are made perfectly even in thickness, or gradually increase in thickness from the edge to the center, as may be desired. As there are no thick or thin places, the friction on the surface of the saw is uniform, consequently it will remain stiff and true, and will require less set and less power. Will saw smooth, save lumber, and will not be liable to become untrue. This is the oldest establishment now in existence for the manufacture of circular saws in the United States, having been established in the year 1830. Orders received at our Warehouse, No. 48 Congress st., Boston. 12 6m* WELCH & GRIFFITHS.

**ROCK DRILL**—The American Rock Drill Co. invite attention to their superior machines, adapted for all kinds of rock work in quarries and mines and especially for artesian wells. They are simple in construction, powerful and accurate in operation, and can be run by hand, steam, or horse power. An engraving and full description appeared in No. 15 of the Scientific American. Apply to T. H. LEAVITT, Agent and Treasurer of the A. R. D. Co., No. 1 Phœnix Building, Boston, 17 3m*

**SCHENK MACHINERY DEPOT**—No. 163 Greenwich street, New York, keeps always on hand Lathes, Planers, Drills, Steam Engines, Woodworth's Patent Planing Machines, Belting, &c., in great Variety. Tools furnished of any size, to order, and of the best quality. 20 6 A. L. ACKERMAN, Proprietor.

**VAIL'S CELEBRATED PORTABLE STEAM** Engines and Saw Mills, Bogardus' Horsepowers, Smut Machines, Saw and Grist Mill irons and Gearing, Saw Gummers, Ratchet Drills, &c. Orders for light and heavy forging and castings executed with dispatch.
LOGAN & LIDGERWOOD,
13 1y* 9 Gold st., N. Y.

**IMPORTANT INVENTION**—Patented August 14th, 1855. "Garratt's Metal" for Journal Boxes of all kinds, It is anti-friction, absorbs the oil, not liable to break, it can be made cheaper than either brass or Babbitt metal, and after many long and severe tests, has been found to surpass all other metals ever used for the purpose, For the purchase of either State, county, or shop rights under this patent, apply to JOS. GARRATT, Senr., Madison, Indiana. 13 3m

**1855-6.—WOODWORTH'S PATENT** Planing, Tonguing and Grooving Machines.—The subscriber is constantly manufacturing, and has now for sale the best assortment of these unrivalled machines to be found in the United States. Prices from $85 to $1450. Rights for sale in all the unoccupied Towns in New York and Northern Pennsylvania, JOHN GIBSON, Planing Mills, Albany, N. Y. 14 3m*

**MACHINISTS' TOOLS.**—Meriden Machine Co have on hand at their New York Office, 15 Gold street, a great variety of Machinists' Tools, Hand and Power Punching Presses, Forcing Pumps, Machine Belting, &c., all of the best quality. Factory West Meriden, Conn. 17 13*

**W. P. N. FITZGERALD**, Counsellor at Law—late Principal Examiner in the U. S. Patent Office—has removed from Washington, D. C. to the city of New York, 271 Broadway, (corner of Chambers St.) As heretofore, his practice is confined to Patent Cases, which he will prosecute or defend, as counsel, before the Supreme and Circuit Courts of the United States, also before the Patent Office, or the Judges having jurisdiction of appeals therefrom. 11tf

**OIL! OIL! OIL!**—For railroads, steamers, and for machinery and burning—Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough, and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer.
F. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 19tf

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**THE NEW YORK DAILY SUN**—Is forwarded by the early mails to country subscribers at $4 per annum, or $1 per quarter, payable in advance. The postage under the present law is as follows: to any post office in the State of New York, 78 cents per year, payable quarterly in advance. Out of New York State, but within the United States, $1.56 per year, payable quarterly in advance. MOSES S. BEACH, Publisher,
4 Corner of Fulton and Nassau sts.

**IMPORTANT TO ENGINEERS AND MACHINISTS—NOTICE**—Those wishing to obtain the genuine articles of Metallic Oil and Grease, should send their orders direct to the manufacturer, AUGUSTUS YOCKNEY, Office 67 Exchange Place, New York. No Agents employed. 1 6m*

**NORCROSS ROTARY PLANING MACHINE.**—The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb, 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks is not an infringement of the Woodworth Patent.
Rights to use the N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS, 208 Broadway, New York.
Office for sale of rights at 208 Broadway, New York Boston, 27 State street, and Lowell, Mass, 19t

**GRAIN MILLS**—EDWARD HARRISON, of New Haven, Conn., has on hand for sale, and is constantly manufacturing to order, a great variety of his approved Flour and Grain Mills, including Bolting Machinery, Elevators, complete with Mills ready for use. Orders addressed as above to the patentee, who is the exclusive manufacturer, will be supplied with the latest improvements. Cut sent to applications, and all mills warranted to give satisfaction. 10tf

**POWER PLANERS**—Persons wanting Iron Planers of superior workmanship, and that always give satisfaction, are recommended to the New Haven Manufacturing Company, New Haven, Conn. 19 tf

**NEW HAVEN MFG. CO.**—Machinists' Tools, Iron Planers, Engine and Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c., on hand and finishing. These Tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices, address, "New Haven Manufacturing Co." New Haven, Conn. 19 tf

**HARRISON'S GRAIN MILLS**—Latest Patent.—$1000 reward offered by the patentee for their equal. A supply constantly on hand. Liberal Commissions paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to S. C. HILLS, our agent, 12 Platt street, New York. 19tf

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# Science and Art.

### Learn to Smell.

By universal consent, the physical faculties of man have been divided into five senses—seeing, hearing, touching, tasting, and smelling. Of the five senses, that of smelling is the least valued, and, as a consequence, is the least tutored; but we must not conclude from this, our own act, that it is of insignificant importance to our welfare and happiness.

By neglecting to tutor the olfactory nerve, we are constantly led to breathe impure air, and thus poison the body by neglecting the warning given at the gate of the lungs. Persons who use perfumes are more sensitive to the presence of a vitiated atmosphere than those who consider the faculty of smelling as an almost useless gift. In the early ages of the world the use of perfumes was in constant practice, and it had the high sanction of Scriptural authority. The patrons of perfumery have always been considered the most civilized and refined people of the earth. If refinement is knowing how to enjoy the faculties which we possess, then must we learn not only how to distinguish the harmony of color and form, to please the sight, the melody of sweet sounds to delight the ear, the comfort of appropriate fabrics to cover the body and to please the touch, but the smelling faculty must be shown how to gratify itself with the odoriferous products of the garden and the forest.

Pathologically considered, the use of perfumes is in the highest degree prophylactic; the refreshing qualities of the citrine odors to an invalid has often restored health when life and death trembled in the balance, by the mere sprinkling of the essence of cedrat in the sick chamber.

The commercial value of flowers is of no mean importance to the wealth of nations. But, vast as is the consumption of perfumes by the people under the rule of the British Empire, little has been done in England towards the establishment of flower-farms for the production of the raw odorous substances in demand by the manufacturing perfumers of Britain; consequently, nearly the whole are the produce of foreign countries. However, while the Society of Arts has an existence I have every hope that ere long the subject will attract their attention; favorable results will doubtless follow. Much of the waste land in England, and especially in Ireland, could be very profitably employed if cultivated with odor-bearing plants.

The climate of some of the British colonies especially fits them for the production of odors from flowers that require elevated temperature to bring them to perfection.

But for the lamented death of Mr. Charles Piesse, Colonial Secretary of Western Australia, I have every reason to believe that flower-farms would have been established in that colony long ere the publication of my work. Though thus personally frustrated in adapting a new and useful description of labor to British enterprise, I am no less sanguine of the final result in other hands.

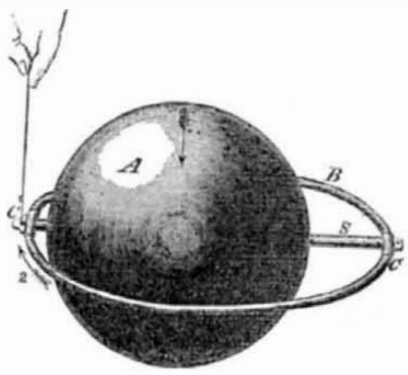
Mr. Kemble, of Jamaica, has recently sent to England some fine samples of "oil of behn." The Moringa, from which it is produced, has been successfully cultivated by him. The "oil of behn" being a perfectly inodorous fat oil, is a valuable agent for extracting the odors of flowers by the maceration process.

At no distant period I hope to see, either at the Crystal Palace, Sydenham, at the Royal Botanical Gardens, Kew, or elsewhere, a place to illustrate the commercial use of flowers—by lectures on the methods of obtaining the odors of plants and their various uses. The horticulturists of England, being generally unacquainted with the methods of economising the scents from the flowers they cultivate, entirely lose what would be a very profitable source of income. For many ages copper ore was thrown over the cliffs into the sea by the Cornish miners working the tin streams; how much wealth was thus cast away in ignorance we know not, but there is a perfect parallel between the old miners and the modern gardeners.

SEPTIMUS PIESSE.

### Centrifugal Action among the Stars.

The accompanying figure illustrates a new apparatus invented by Abner Lane, of Killingworth, Conn., to illustrate the action of centrifugal force among the heavenly bodies.




A is a brass globe secured on a spindle, S. B is a ring of brass, made with bearings at C C′, in which the ends of the spindle, S, revolve. The globe is not secured on the middle of the spindle, but the only object of this is, to allow space for winding a cord or thread spirally around the longer part of the spindle to draw it off suddenly and rotate it in the same manner that motion is given to a French top. The globe will then rotate in the direction shown by the vertical arrow; and if the apparatus be held by a cord—as shown by the finger at the one side—the whole will revolve in the direction of arrow 2, exhibiting a compound motion: the one of the globe on its spindle; the other of the ring and globe round the fixed point, C′.

It would naturally be supposed that the apparatus would not revolve in a horizontal plane when held as represented, but that it would drop down at the opposite end; this, however, it does not do when in rapid motion, and even when set inclined with any one of its poles upward, it will revolve in that inclined position, just as our planet revolves on its inclined axis. A wheel may be substituted for the globe. This apparatus can be held in the same position from either side, and it makes no matter whether it is suspended by a cord, as shown, or upheld on a fine point, like that of a strong needle placed underneath one of the small lugs at C or C′, (which are indented for this purpose,) and which is perhaps the most interesting way of exhibiting the experiment. If the globe receives a motion contrary to that shown by the vertical arrow, the apparatus will revolve contrary to the direction of arrow 2.

The most striking part of this experiment is the self-supporting action of the globe, by making the whole apparatus revolve in the same plane in which it is set. Were this not the case, the apparatus would not revolve when held at one side, but would at once drop down with the spindle, S, in a vertical position.

The motion of globe A on its spindle, and its double motion round point C′, explains the compound motion of our planet round its central luminary. If we consider C′ to be the grand center of attraction—the sun—then we can understand how the force which set it revolving is one cause of its annual revolution, and a cause which prevents its falling into the sun. The amount of centrifugal force in a planet, or the velocity with which it rotates on its axis, is therefore apparently an exponent of the velocity with which it moves through space.

This apparatus presents a strong argument in favor of the "nebular hypothesis," if we admit that the matter of which the planets is composed was once part of the sun as nebula, then formed into rings, then into globes revolving on their axes. If no rotative impulse had been imparted to a globe or ring so formed, it must have fallen in upon the central body. None of the views of the nebular hypothesists have hitherto been satisfactory on this point. The object of this apparatus is simply to exhibit the action of centrifugal force, (which may also be called rotary action, and inertia,) in the planetary system; and is one of the most beautiful philosophical experiments in the whole range of the science of astronomy.

These apparatuses can be obtained of the inventor at Killingworth, Ct., and at Pike & Sons, this city—one is on exhibition at our office.

## Literary Notices.

SPIRITUALISM SCIENTIFICALLY DEMONSTRATED.—The venerable Professor of the University of Philadelphia, Robert Hare, a cherished name among all lovers of Science, and one that stands high on the roll of mortal *savans*, has become a convert, in his old age, to spiritualism. Like Faraday of England, Hare of America, undertook the careful examination of the alleged spiritual phenomena, with a view to expose their deceptions, and throttle their heresies. But, unlike Faraday, our Professor has been caught in his own trap. Instead of leading spiritualism captive, the sweet and subtle influence of the new *ism* has overcome his senses and taken possession of his soul. The scientific exposer of spiritualism has become its proudest defender.

Under the title of "Spiritualism Scientifically Demonstrated," Professor Hare has issued a volume of some 450 pages, in which he sets forth a statement of his own conversion, and records a mass of alleged scientific evidence authenticating, in his view, the spiritual character of the singular manifestations. In whatever pertains to science we are, of course, interested. Wherever science leads the way we are bound to follow, whether it be to those lower regions, of hideous memory, unfathomable below, or to those other spheres of love and light, above us in the skies. Let us look, then, at a few of the evidences in favor of the new hypothesis, which this new champion reveals. Our examination will, necessarily, be quite limited and brief, unaccompanied by theories or arguments to sustain the views we express.

In order to satisfy himself that inanimate things could be moved without any human agency, and that the power which effected such movement could be no other than spiritual in its character, Professor Hare constructed a number of mechanical contrivances for the purpose.—We shall only allude to one of them. It consisted of a disk having the letters of the alphabet painted around its edge, with a pointer pivoted in the center, like the pointer of a compass. Placed upon a table, in the room with the medium, but unseen and untouched by the latter, or by any one, the pointer moved intelligently from letter to letter. Thus was communicated to Professor Hare a great variety of information, purporting to come from the shades of departed great men, among whom were Washington, Franklin, Isaac Newton, Channing, Henry Clay, and Dr. Chalmers.

The testimony in favor of the reality of physical manifestations, as claimed, in general, by spiritualists, is so extensive, so multiplied, and comes from so many different respectable sources, that we shall take it for granted that the pointer of Dr. Hare's machine did move intelligently without apparent human aid, and bring him telegraphic communications, just as he asserts. But we are far from believing that spirits had anything to do in the premises, and we think that the character of the communications received abundantly supports our view. Professor Hare's book, almost from beginning to end, is, to our notion, an incongruous mass of absurdities—about as spiritual in their character as the brayings of an ass. We will give a few extracts, and in doing so we present them as fair samples of the general contents of the work. On page 169, the author says:—"Whatever want of ability may be shown by Dr. Bell, to exist in the communications alleged to come from Paine, Swedenborg, and Bacon, or from spirits personating those distinguished men, it cannot do away with the valuable information which I have obtained from my spirit father and others, sanctioned by a convocation of spirits. It has been shown that in a few pages of that communication, there is vastly more knowledge of our happy prospects in the future world, than *all that can be found in the Scriptures.*"

The italics are ours. Let us see what this *valuable information* is, that so far surpasses the Holy Bible. The news, it is alleged, came from Dr. Hare's deceased father, or rather from his spirit, and its genuineness and correctness was substantiated by spirit Washington and the others, whose mortal names we have already mentioned. The sum and substance of this new knowledge is as follows:—

"Between the earth and the moon there are seven concentric spheres which constitute the abode or the country of the spirits. The first sphere begins at 60 miles from earth, and the last or higher sphere terminates at 120 miles from our planet. The spirit country is diversified with hills and dales, mountains and valleys, rills, rivers, lakes, trees, flowers, birds, and every attribute known to mortal earth. The spirit people cultivate music, poetry, arts, and sciences, just as mortals do, only more zealously. The rays of the sun do not penetrate the spheres: they are illumined by a sun peculiar to the spirit world. Spirits possess a personal effulgence, which is occasioned by a species of luminous matter which exists in their bodies; just as certain insects are luminous, owing to the presence within them of luminous material. The luminous deposit of spirits, however, is of a spiritual character, entirely different from that possessed by insects. Spirits have no weight; they possess the power of annulling gravity and vis inertiæ to a small extent, and use human mediums as instruments for moving chairs, tables, &c., in the same manner, substantially, as mortals use implements to effect purposes; this peculiar power of spirits is derived from the Deity. Spirits have a magic power, like Alladin's, to erect houses or whatever they desire. Infants go directly after death, to the seventh or highest sphere, where they are carefully instructed. The after affection of children that die young for their parents, is greater than it would have been had they lived in the world longer. Spirits have a circulating fluid in their bodies corresponding to our blood: this spirit fluid is without weight or color. The gaseous or ethereal matter breathed by spirits also pervades our earth, and is likewise inhaled by mortals, and supplies our venous system. Fishes require this gas, and are supplied with it imperceptibly in conjunction with atmospheric air, while swimming. Bad people go to the lowest spheres when they die and remain there for a long time. This is their punishment. After a period, reform takes place, and the subjects rise to higher and happier spheres."

The above extract, we suppose, contains the essence of Professor Hare's Scientific Spiritualism. In seriously asserting that it is better, more definite, or more easily comprehended than the knowledge presented in the Bible, relative to the future life, he displays a very warped judgment, and an exceedingly limited acquaintance with the sacred volume. Partridge & Brittan are the publishers of the above work, No. 342 Broadway, N. Y.

A LYRIC OF THE GOLDEN AGE—By Rev. T. L. Harris. This is a poetical volume of some four hundred pages. The author ranks, in the estimation of many persons, among the first of living poets. His writings are remarkable for brilliancy of conception, and rich, fresh, melodious expression. He unquestionably possesses a high poetic inspiration. Of an ardent, sympathetic, impressive, spiritual temperament, he was among the early converts to modern Spiritualism, and soon became one of its most extraordinary mediums. Some of the most singular of all the physical manifestations claimed by the spiritualists have occurred during the presence of Mr. Harris. Indeed, the volume before us is gravely put forth as the production of the spirits, acting through the organism of the author. Regarded as a spiritual communication it certainly surpasses anything from that source which has heretofore fallen under our notice. In the books of Judge Edmonds, Professor Hare, and other spiritualistic writers, there are numerous communications purporting to have been written by the ghosts of various of the great literati, who once inhabited these mundane regions. But among them all we remember nothing that begins to compare in literary merit with the present Lyric. Mr. Harris thinks the spirits wrote it, but in our view it is too good for them; it bears the unquestionable stamp of the author's own genius, and we cannot help thinking that he labors under a modest delusion in attributing any aid in its production to other sources than his own mental powers. Partridge & Brittan, publishers, 342 Broadway.

THE CITY ARCHITECT—This is the title given to a new work on Architecture, by Mr. Wm. H. Ranlett, one of the most successful and talented members of the architectural profession. Mr. Ranlett is well known as the author of one of the noblest works on "Cottage and Villa Architecture" now extant. We are told that the sales of that production have reached 8000 copies, although the price is $12 per volume. The present work is to be confined principally to city structures. Judging from the first number, which is before us, Mr. Ranlett is about to add a most valuable contribution to the present stock of practical information upon the special subject to which his book relates. The work is sold in numbers at 50 cents each, all of them being illustrated with large and splendid views, plans, diagrams, estimates for buildings, specifications, &c. There will be 20 numbers in all. Dewitt & Davenport, 162 Nassau st., N. Y., publishers.

THE DISCARDED DAUGHTER—By Mrs. Southworth. The authoress enjoys a high reputation for the interest and power with which she manages to clothe whatever subject or character she undertakes to portray. The "Discarded Daughter" is said to be one of her happiest efforts. An elevated moral tone is exhibited in every chapter. T. B. Peterson, Philadelphia, publisher.

POESIAS DE PLACIDO—This is a compilation of the writings of Placido, a native Cuban poet of great genius and lofty fame. Placido was born a slave, but subsequently obtained his freedom through purchase, being aided by friends who admired and assisted to develope his genius. He was regarded by Spanish critics as one of the first of their poets. In 1844 he was denounced before the Cuban government for his connection with the Matanzas negro insurrection, and under the orders of the merciless Tacon, then Governor-General of the Island, he was put to death. The present compilation is edited by Prof. F. J. Vingut, a Cuban exile resident in this city, and a gentleman of great literary ability. Published by Roe Lockwood & Co., 411 Broadway.

POESIAS Y DRAMAS DE HEREDIA—Here is another poetical production in the Spanish language, for which we are again indebted to the zeal of Professor Vingut. Heredia was also a Cuban poet, but the largest portion of his life was spent in Mexico, where he became highly distinguished as a lawyer, a Member of the Government Cabinet, &c. Heredia is stated to have evinced extraordinary poetical talents at the early age of 10 years. Several of his manuscripts, written at that period, are now produced. Heredia died in Mexico, in 1835, at the age of 35. Roe Lockwood & Co., publishers, as above.

BLACKWOOD'S MAGAZINE—The present number of Blackwood, issued by its American publisher, commences a new volume, being the 79th of the work. The first article is on the "Currency of Britain," and is down on Peel's policy. An article on "Lancashire Strikes," those of the cotton spinners and weavers in Manchester, is savage on Cobden. The article, however, is a good one, on the Tory side, and deserves to be read by manufacturers and operatives of all degrees. The concluding article is on the present state of the British army, and it makes out a bad case for the system. "Military adventures in the Pyrenees," is a new story commenced. Published by Leonard Scott, & Co., No. 54 Gold st., this city.

ALL ABOARD, is the title of a pleasant little volume from the pen of Wm. T. Adams. A genial humor seems to pervade every page of the book. Brown, Bazin & Co., publishers, Boston, Mass.

RIVAL BEAUTIES—By Miss Pardoe. This is one of the standard works of fiction, always sought for, always interesting. Fetridge & Co., publishers, Franklin Square, New York.

MY FIRST SEASON—By Beatrice Reynolds.—A spirited, absorbing tale of English and Continental fashionable society. It contains many points of deep interest, gracefully expressed, and ingeniously woven together. Fetridge & Co., publishers, Franklin Square, N. Y.

SALADEE'S COACHMAKER'S MAGAZINE—The February number of this Magazine is illustrated with four plates, on one of which is a view of Shelley's patent wheel—a good improvement. It is a good number, well illustrated, and well edited. Published at Columbus, Ohio.

MAJOR JONES' COURTSHIP—This is a laughable New England story, in which the trials of a genuine Down Easter, Major Jos. Jones, are detailed, by himself, in true Yankee style. No one should attempt to read this book without first having bound up their sides with a stout blanket. Illustrated by Darley. Published by Peterson, Philadelphia, and H. Long, New York.

THE NATIONAL MAGAZINE OF LITERATURE ART AND RELIGION—Published by Carlton and Phillips, 200 Mulberry st., New York. The number for March is excellently illustrated and edited.

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